PUBLIC ADDRESSES by W. P. WHITSETT

Chairman of the Board of Directors

of

The Metropolitan Water District

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LOS ANGELES' BACK-YARD -- THE EASTERN SIERRA PLAYGROUNDS

By W. P. Whitsett

(Los Angeles Water & Power Commissioner)

We Americans deservedly have been our own harshest critics for dis-regarding and ignoring our own natural scenic and recreational advantages by scattering so many millions abroad, instead of spending more of our time and money nearer home.

"Seeing America First" has at last been made something more than a mere slogan. Convincing figures have been broadcasted to show how high the national cost of this all-too-popular delusion for minimizing our own and magnifying foreign competitor-attractions to travel.

My mission in this message is to draw thought toward our own Eastern High Sierras -- Los Angeles' back-yard playgrounds -- to suggest how far short of their possibilities we at present are using them.

Physically -- as regards topography, ruggedness of snow-capped summits, loftiness and their scenic attractiveness in general -- our Eastern High Sierras are strikingly similar to the Swiss Alps. In magnificence and wide distribution of coniferous or evergreen timber, the Sierras are superior; for the winter sports of snow and ice they equal anything about St. Moritz. Only in name and the easier access that Man has made, can the Bernese Oberland out-rank ours; while the Sierras bost two major sporting attractions which the Alps scarcely suggest -- fish and game. These primitively powerful lures drawing the hunter and angler to the wilderness possess a "pulling-power" beyond question; thus far they have brought more men into our mountains than all their other attractions, yet the Swiss Alps, by comparison have virtually nothing to offer the rod and gun sportsman.

Why then has Switzerland, with less to offer, succeeded in supporting 189 towns and nearly 3,000,000 people through catering to the annual influx of tourists drawn to her Alps? How come that we Californians have not made far more and better use of all these Swiss attractions our Sierras offer so lavishly with hunting and fishing additional? Switzerland has 30 lines of tourist railways rendering altitudes of 11,000 feet easy to reach; she has 2000 post-offices and telegraph stations, 4000 miles of State railroad and 40 truck-lines handling freight and passengers over excellent modern hard highways maintained in continuous repair. Certainly, considering these developments and comparing them with our own scanty beginnings, none could claim that we Southern Californians are now even "scratching the possibilities" of our own mountain attractions up along the line of our domestic water-supply, within an easy day's drive from home. Here are the people; there is the opportunity, coming by thousands every month to settle in the balmy South; a climate to which the sharp, bracing air of the snowy High Sierras is just the best and most stimulating change possible. Why, then, are we making so little use of it?

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It is easier to ask this question than to answer it. Some may say that development awaits the interest; to which others would answer that the interest awaits development. Development of more and better transportation facilities rendering the now remote places as comparatively easy of access as the Swiss hinterland -- or, as they themselves know it, their "Oberland". Of course there is development going on all the time, and increase of interest is at least keeping pace. Switzerland was not built up to her present volume of recreational business in a day or a decade; it has grown through centuries. But we Californians never have been satisfied with the normal or natural slow processes of growth in anything else, so why accept the enormous annual loss to our state and country that is expressing itself in this out-go of good American money to Switzerland for what we could offer right here at home? It isn't business, it isn't patriotic; it is building bad travel-habits among those of the wealthy who have educated themselves to the fallacy that Switzerland alone can supply what they now are going to the Alps to enjoy.

The city department wherein I have been privileged to help is now more keenly interested than ever before in the adequate development of Los Angeles' back-door playgrounds, because these Eastern High Sierras are indeed so peculiarly our own. It is to them that we turned more than 20 years ago when the great growth of this City demanded commensurate development of a municipal water-supply capable of keeping abreast of demands brought by incoming population increasing beyond all precedent. Thus was inaugurated a business policy of necessarily many ramifications. Along with it has grown up naturally enough a considerable recreational responsibility. We have wished the people to enjoy every advantage incidental to the enormous investments they have financed and made possible for water. Power and light have come hand in hand; and the giving of every aid toward recreational development is a proper and inevitable following-up and rounding-out of the program. It is becoming more possible as the City each year has come into control of more and more of the areas required. Each new storage-reservoir is another potential fishing lake; every ranch acquired in Owens and Long Valleys of Inyo and Mono counties becomes incidentally another producer of game.

We who have learned what the Eastern Sierras have to offer, wish all our citizenry to get better acquainted with them; to enjoy them more generally and more fully. We wish to move some of the Swiss spirit up along the Aqueduct, realizing that thereby we shall keep more and more of that good American money here in California where it belongs, rather than going overseas. We hope thereby to give our own citizens the benefits, physical, and financial, that must accrue from this large expenditure right within our own commonwealth. It is a unique and interesting opportunity that these Sierran sporting possibilities unfold before us all; one wherein not only the sportsman is interested but also every class of business that divides his vacation expenditures. How vast these are in the aggregate, we can readily conjecture from learning that upwards of half a million licenses are sold to sportsmen each year, who must on the lowest estimate, average to expend considerably more than a hundred dollars indulging the privileges for which their license-dollars were paid. The sporting-goods dealers do not get all this fifty million or more dollars; nor the motor-vehicle and allied industries; nor the mountain resortmen and those along the way. Those dollars go far to make friends; the woolgrower gets his part in blankets and outing clothing; nor is the cotton-grower forgotten in the canvas and khaki demand for camping equipment. In short, the disposition of non-sportsmen to dismiss sport as merely the diversion of those who like hunting and fishing, is far short of the facts, since its business aspects are of major importance. Particularly must this be true in any commonwealth whose growth has been due so much to its all-year outdoor attractiveness as ours in Southern California.

During the last two years, despite certain economic and local disturbances rather discouraging to recreational interest, it has increased noticeably all along the eastern high Sierras until now, with the new naval arsenal at Hawthorne, Nevada, assuring maintenance of the now greatly improved El Camino Sierra (Eastern Sierra Highway) the hunting and fishing opportunities of Inyo and Mono counties are certain to be so much easier and more comfortable of access that this coming season is very apt to surprise us all with the number of sportsmen attracted to their most alluring trout fishing and such game as now offers.

Right now, with a Legislature in session, fixing fish and game seasons and policies for the next two years, is perhaps the best time to ask ourselves whether all of our present laws are likely to admit of the largest development and greatest popular use of Eastern Sierran wild-life that is compatible with maintaining the necessary breeding-stock.

It is self-evident that any broad program for the utmost-possible development of these sporting attractions must be founded upon an intelligent basis of wise laws not unnecessarily restrictive upon the sportsman whose patronage is wholly dependent upon what seasons he is allowed to pursue his favorite recreations.

By the same process of reasoning, the need of every artificial method of propagation and introduction of desirable fish and game suggests itself; likewise the good sound common-sense of campaigning against the verminous natural enemies of fish and game to the end that the sportsman who is willing to pay well for the chance, may be allowed to enjoy what now is a dead loss; the deer killed by lions and the game-birds destroyed by predatory -- and other -- animals ranging their breeding-haunts.

There seems to be a trend to dismiss the whole subject of fish and game protection by the easy but ineffectual method of passing through legislatures laws restricting its taking by man. Natural enemies respect neither season nor bag-limit; nor hesitate to wreak their worst havoc during the breeding-periods. State after state has sacrificed its fish and game by merely piling one restriction upon another as wild-life dwindled year after year, until the final fallacy of closing seasons proved itself as in Ohio where the classifications of the Bob White quail as a "song-bird" all but signed its death-knell by divorcing from it all interest of the sportsmen whose associations used to feed enough through the snows of winter to maintain a breeding stock. When the hunting-season closes, the license-income upon which depends the greater demands thus brought for enforcement, is throttled; that species thus is dedicated to the violator who shoots it at will, benefiting somewhat from relief of competition by the law-abiding, whilst meanwhile all natural enemies thrive directly at expense of any breeding-stock left.

One by one the western States have come to applying the same principles of artificial propagation to game that have been so spectacularly successful with game fish here in California. While nowhere has the matter been approached upon the wholesale basis found necessary across the ocean, a public demand for more of such work has been built up, and even here in our own State which, though a pioneer in the artificial propagation of alien and indigenous game in the West, lost many precious years in watching others profit by the good example set here over 20 years ago. What now is needed is wholesale following-up of artificial propagation and introduction of promising alien species, rather than further and fatal restrictions upon present moderate hunting and fishing seasons.

Taking the matter of pheasants in Owens' Valley, now established successfully to the status of a possible game-bird from small plantings 20 years ago and again a few seasons back, some idea of what might be accomplished is to be gotten from considering that the entire plantings in this county of Inyo since the first are less than are liberated on any large English shooting-estate in any single season. Fewer pheasants have been planted in Owens' Valley to the square mile in 20 years than any average British shooting-estate liberates to the acre in any one season -- yet, these royal game-birds are now established sufficiently to be encountered in any day's quail-hunting. A season was opened upon them a few years ago, one week and seven birds; there was the usual criticism that seems to attend anything novel in this country and it was again closed, to the considerable financial loss of Owens' Valley business-men who benefited considerably by the influx of southern sportsmen attracted during the ordinarily dullest times of early December for a chance to bag some of these game-birds of royalty. Critics of the pheasant season seemingly forgot that any over-shooting of the supply could be remedied by the same operations that artificially planted them in the first place. European partridges, which have thrived amazingly in the Pacific Northwest after importation, offer a promise of success through out the more open ranges of Owens' Valley equal to that attained by pheasants in the marshy and cultivated trough-sections. Under the present program of the State to invest $10,000 in the importation of these birds, every effort should be made to assure that Owens Valley and Mono County are given the benefit of experimental plantings sufficiently large to promise success. It has been found that unless liberated in number of 50 or more at a place, the socalled "Hungarian" partridges are likely to disappear, being highly gregarious by nature.

At present, sentiment of resident sportsmen in Owens Valley favors a return to the former May first opening of trout-season with the State authorities exercising their newly-conferred discretionary powers to close any needed spawning-areas as seasonal exigincies may suggest. Efforts are being made against private monopolizing of the fishing along streams that have been stocked by the State. Pressure is being brought to bear for greatly increased propagation of trout, aiming to make use of all the trout eggs that can be collected from the various natural spawning situations and to rear these in the local hatcheries, making any needed additions to handle such eggs, rather than curtail operations from lack of capacity or help. An earlier season has been suggested on golden trout also. These, being peculiar to the Sierras and adapted to the glacial conditions of higher elevations, are a special attraction of quite general interest, since every angler wishes to include golden trout fishing in his experience. Artificial propagation of golden trout has been very successfully accomplished with eggs taken from the Cottonwood Lakes, and the fish have been quite widely distributed under a policy of planting them separately in barren lakes rather than in competition with other species.

As regards game protection and propagation, there is need for a well-founded and comprehensive program of development applied to the entire length of the Eastern Sierras, which present most alluring opportunities for the production of many times their present annual crop of wild birds and animals interesting to the gunner or rifleman.

Physically, presenting every life-zonal condition between temperate and arctic, from the moderate elevations of their valleys, or even the sub-sea-levels of Death Valley within the same county up to 14,500 feet of Mt. Whitney, the possibilities for developing all-around game attractiveness are such that this vast section of "open spaces" could be made an enormous asset not alone to itself but to the South and all California by drawing sportsmen from all over the world.

In big-game, some idea of the maintenance possibilities of the Sierras may be gained from the shocking slaughter of deer it was possible to attain upon the one relatively small section of Stanislaus Forest north of Yosemite, when hired hunters and poisoners were paid for the murder of over 26,000 deer during the "hoof and mouth" panic, the animals having been subjected to the infection by sheep having entered the mountains carrying the disease. That is doubtless more deer than are legally killed in any year throughout the entire State; probably as many as are killed by both sportsmen and violators. Yet, it is believed that mountain lions, a pest upon stock-men as well as hunters, kill more deer each year than the riflemen. How simple then it would seem to systematically hunt down these utterly useless, worthless predatory pests and capitalize the certain increase of deer therefrom by allowing money-spending sportsmen to enjoy more productive hunting?

There is a general belief among hunters that the sharp hoofs of sheep are a menace to all ground-nesting game-birds as well as their omnivorous appetites for everything that grows green right down to the roots. Many observing sportsmen go so far as to say that the policy of creating game-refuges without excluding sheep therefrom is wasted effort. Such would substitute a policy of setting-aside large areas for game to feed freely upon, with systematic campaigns against controllable vermin carried on simultaneously. In fact some Senator has a bill in the present legislature to classify all fur-bearing animals as predatory and without legal protection on the ground that the fur-bearers all prey on game and it is illogical for the State to undertake the protection of game and its enemies at the same time.

Ducks at present are suffering more from the decrease of natural marshy feeding areas and loafing-grounds because of the prolonged dry series of years than from the gun; indeed it has developed that the gunners were their only friends through the creation of artificial marshes by clubbing together. Migratory fowl depend somewhat upon cultivated grain for considerable of their rations. The return to general cropping that will follow throughout Owens Valley upon resumption of normal snowfall and restoration of water-supply will fit in with the general program for game developmental work most practically.

Owens'' Valley sportsmen are asking, in common with those from other mountain sections of the State, for an advancement of the quail season to the month of November instead of December as now, on ground that in normal seasons there is snow in December and the trees devoid of leaves, unduly exposing the quail. While that argument might appear doubtful as a conservation measure in view of the obvious fact that the same snow which concentrates quail in back-country barnyards also renders the back-country inaccessible to the automobile hunter and thus much more than balances any inroads the pot-hunting species of snow-shooting rancher might wreak upon the bluebirds, there is sound practical business basis for advancing the season two weeks to open November 15th. And a moderate pheasant season might well be added to open about the middle of the quail season on a two weeks, four daily, eight weekly baglimit as now done with sage and mountain grouse. The sage-chicken, America's largest and noblest grouse, is a peculiar attraction of the Mono oberlands; a splendid game-bird which seems to be maintaining itself surprisingly well in all its breeding-sections where protected from sheep until along in July, after which the pasturage of its haunts does relatively little damage. Some talk of closing sage-hen season might well be dismissed with the thought that equal collective or co-operate effort toward keeping sheep out of sage-hen breeding-grounds until after the young crop were fledged and able to flush, might accomplish far more for the sage-hens than dedicating them to violators at sacrifice of their present very considerable value as a sporting attraction.

It is a simple and readily-understandable program of fish and game-laws that is required to permit and encourage the utmost possible sporting attractiveness of the Eastern Sierras, when properly backed and supported as it should and must be, by a wholesale importation and propagation of wild life.

With fishing opening May first which in the higher portions of Inyo and Mono Counties is about as early as practicable in most seasons, and the earlier season asked on golden trout enacted into law., the angler would be drawn in force to the Eastern Sierras throughout the months of summer, with sage-chicken shooting the first two weeks of August, then doves during September and October, with grouse for variety after the middle of September and deer for the rifleman up to mid-October, offering a chance for tracking in the snow. With October come on the ducks, which at present have to bridge the gap until December; but a quail-season opening November 15th for a month and a pheasant-season of two weeks opening December 1st would round out and fill in a program of continuous variety and attractiveness to the gunner and rifleman which could not fail to make of the entire Eastern Sierras and Owens' Valley particularly, the summer and winter playground of all rod and gun sportsmen.

So many would be attracted that the enlistment of public interest would assure establishment of every needed facility for propagating fish and game as well as campaigns for vermin control equal to accomplishing the desired results.

Already the Owens' Valley sportsmen have made something of a beginning by recommending that the present ill-advised protection of magpies be removed by their classification as predatory in that district. The counties of Inyo and Mono were set aside several years ago as a special "Sportsman's Paradise" fish and game district numbered 4½ in order to enable special legislation to be passed with view to offering every inducement possible to hunting and angling interest. Why not follow up and put a practical point to the program then inaugurated?

By this course, and thus alone, can the success of Switzerland be duplicated here at home amongst our own Alps, leaving the development of snow and other allied sports to follow along as it assuredly will in due course.

If every sportsman interested and every businessman affected would get behind this program with a letter to his Senator and Assemblyman at Sacramento, the thing would be done. We need ask only for the changes; an earlier fishing-season; an earlier quail-season with a pheasant-season in conjunction; the removal from protection of magpies and more work against mountain lions and other pests. By this course, we shall conquer any obstacles in the way.

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SOME STARTLING FACTS CONCERNING OUR WATER LIMITATIONS AS WELL AS WASTES, AND SOME SUGGESTIONS AS TO RECLAMATION.

The Los Angeles District comprising Los Angeles County south of the San Susanna Mountains; Orange County south to the Temescal Range; the great San Bernardino Valley (which includes a portion of Riverside County) being bounded on the North by the San Bernardino Mountains, the East by the San Jacinto, and the South by the Temescal Range; offers a drainage basin of some 3,318.9 square miles with an annual water runoff of 803,200 acre feet (during the period 1916 to 1919 this average was 575,800 feet). The average square mile water crop is therefore shown to be 242 acre feet, or during the period 1916-1919 but 173 acre feet.

Our available annual water crop is estimated as 362,330 acre feet, which takes into consideration the Los Angeles aqueduct delivery. This computed at 33-1/3% of the runoff. Presuming that at least 10% more can be made available through pumping from subterraneous basins which primarily depend upon the rain crop, this would give us an annual total of 471.030 acre feet. Our present population in this district exceeds 1,140,000, and our per capita requirements are around .1401 acre feet. In other words, we require 159,714 acre feet, for domestic consumption, which would leave us but 311,316 acre feet for agricultural usage; that is, this amount of water represents the limits of our agricultural expansion.

With a total possibility of 620,500 acres capable of irrigation within this district, it is quite evident when we check this up that but .50 acre foot is permissible per acre - a serious outlook in Los Angeles' expansion policy in agriculture absolutely necessary to go hand in hand with our industrial development. That our conservation of water is urgently necessary is apparent.

The next question arising seems to be, how can we conserve our waters? To me, there are four positive avenues opening toward conservation; through the use of dams, reservoirs and filter basins in the storage of water both surface and subterraneous; through the elimination to the smallest decimal of seepage and evaporation in canal and conduit delivery and distribution systems; through conservation in delivery to crop through lateral and irrigation systems; and finally through making our soils produce maximum crops at the minimum of water expenditure . California is to the fore in water conservation not only of the United States, but possibly the world as a whole, but much remains to be done since our whole future bigness is totally dependent on our water availability. Not only some of the runoff, but all the water crop must be conserved in dams, reservoirs, or led into basins where it may sink into the earth to be made available. It is estimated that between 40% and 50% of all waters for irrigation is lost iff carried in earthy conduits, canals and ditches, and from 10% to 30% in cement lined canals and defective pipe waterways, before it reaches the laterals. This is a leak worth while of immediate investigation and unquestionably offers no hindrances in its stoppage since through the use of standard cement construction it can be almost entirely eliminated.

Another 30% to 70% is lost in the use of open earth laterals or ditches and of all waters delivered in heads to crops 90% to 95% is wasted. In other words, the crop uses but 5% to 10% of the actual water supplied.

Again, the use of concrete in the construction of laterals to deliver water directly to the crop offers a solution to the first

waste, but it is up to the agriculturist and the irrigator to perfect the greatest saving in water waste through a more scientific knowledge in its use by the crop and in its application to the crop.

Lastly, through making our soils acceptable in irrigation to the minimum use of water. The British Government has proven, through the establishment of a drainage system in the delta lands under the great Nile irrigation district, that they have been able to conserve at least one-third of their water and increase agricultural production 100%. In Ceylon, Captain Corlett has proven that in the production of rice on fully piped, drained land, water requirements are materially reduced and the crop production increased 100%.

California has never geriously concerned itself with the drainage question. A few of us realize that our California reclamation projects are hardly more than keeping even with our alkaline and bog land waste due to lack of drainage. Drainage frees the soil from deleterious salts; sweetens it, thus permitting aeration and exidation; takes off all excess water, establishes better soil capillary activity, and while lowering the water table it automatically raises the moisture level. Plants require moisture, but are easily drowned. A moist aerated soil permits the conversion of organic material and mineral salts through bacterial action into plant food. A soggy soil starves the plant, besides poisoning it, and in the end drowns it.

There is still another method of water conservation, and that is through the utilization of activated sewage waters. Where water is so great an asset as it is withus, where fertilizers are so scanty as they are with us, neither should be permitted to be wasted, but through rectification converted to economic use in increasing our irrigable acreage and furnishing it with plant food.

There is another thought. Can we not, through clothing our foot hills and mountains, conserve our water crop, decrease evaporation and our enormous loss sustained thereby, as well as create a humidity which might directly increase our rain crop? A drive through Elysian Park will show you once bald hills, rocky, and with but a lip skin soil, now clothed with Dedrus Deodara and Monterey Pine. If trees will grow here under such adverse conditions, why not upon our splendid soil clad foothills and mountain sides where conditions are so much better and thus add possible wealth in water offering, a noble commercial forest to our posterity, and beauty beyond contemplation to the present generation and for all time to come?

Geo.P.Clements
Manager Agricultural Dept.
Los Angeles Chamber of Commerce
Los Angeles, California
September 19, 1921.

The writer is indebted for some of his data to the following sources:

Mr. J.B. Lippincott
Captain Dudley S. Corlett
Egyptian Irrigation District

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~~DENVER PARK~~

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Who ever heard of the Rocky Mountain Park, until the City of Denver 60 miles away, thru an enabling act annexed and developed it.

At once, every traveler, every sportsman, recognised that the Rocky Mountain Park must be the central gem of all that region, otherwise the entire people of the City of Denver would not have burdened themselves with its care, and proudly linked it to the fame and glory of their Metropolis- And every traveler feels the urge to see that Park-

Now, let us link the destiny of this region to the greater fame of the most famous tourist city in the world, and it will not only bring to this region a one hundred per cent prosperity, but it will go beyond our most hopeful conceptions.

The story of the 2000 glacial Lakes of Los Angeles will challenge the credulity of every traveler and every citizen and become a dominant feature of her fame. The High Sierras Park will be linked in the mind of men wherever the famous name of Los Angeles is spoken. Please do not think I overrate this result- Outside the circles where the name of Denver is discussed- What is it that brings up the name of Denver for discussion? What feature has made you read of or discuss Denver in recent years?

It is her Rocky Mountain Park: And this Rocky Mountain Park gives a Wideness to the fame of Denver and a lure to visitors, that factories, products- or financial greatness could never obtain for her.

The Good Book tells us that the last shall be first- and it should thrill every homeland resident of this region that the growth of Los Angeles shall be linked with and caused by the marvelous grandeurs of our Sierra Alps.

DENVER PARK

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The future progress of the City of Los Angeles will be the joint progress of this High Sierra region.

Los Angeles cannot live her destiny without a natural increase in her tourist and outing attractions and the Eastern Sierras sources of Water supply.

Nor can this region attain the maximum development without the physical, financial and sentimental support of the City.

Three years ago I was called upon to submit an economic plan for the developing of this valley. Here was a warning I sounded in that survey, which I will read you:

> "These nature-balanced, carefully adjusted, productive, educational, manufacturing and living possibilities can forever be destroyed by the activities of exploiting real estate lot subdividers -- by the voting of needless special assessment taxes, and by the raising of land prices to a point where it becomes an impossibility to produce crops profitably.
>
> "These are pitfalls in the way -- the stumbling blocks in the path of a great community's progress toward broader, better things; but they are obstacles plainly seen and recognized, and by foresight and concerted action on our part they can and must be avoided, if we are to realize the high hopes and the great ambitions that are the natural desire of our community."

Both these warnings have not been heeded. Paving petition has followed paving petition, frequently to improve streets that were years ahead of their need. Overlapping assessment districts have put a terrific burden upon property owners. These assessments have diverted money from our community trade channels. They make refinancing more difficult, for these liens must be paid off before loans can be renewed, in most cases.

Great tracts of land have been cut into 25 and 50 foot lots, sold under high pressure methods to speculators scattered all over the world. The land from which these lots were cut has been taken out of production and will now lie dormant for years to come. They had far better been converted into garden acres, and their productivity increased. They would furnish food and give healthful employment to thousands of semi-retired families, who could have lived in the sunshine of San Fernando Valley and have contributed to the increased prosperity of the community.

With the water tables on the coastal planes of Southern California annually receding, other communities are clamoring for additional water. It would be far wiser for this valley to find additional families to keep this precious water supply in the most beneficial economic use.

I have perhaps acquired a habit of looking at the dark side of the picture, when I study the obstacles that make it difficult for us to progress as rapidly as we should. But we should profit by the mistakes we have made and then turn our attention to a consideration of the bright side of things.

While the errors we make may slow down the development of the valley, nothing but a shortage of water can stop the inflowing tide of population -- nothing else can stop the achievement of our goal, the building of a great city of garden homes. We have the three principal assets that will make this possible: water, climate and good productive soil.

We should be in a position, after the election is over, to move ahead faster than we ever did before. We have much in our favor--climate, water, location, soil. New Industries are looking toward our Valley. The establishment of the Metropolitan Airport may do much toward locating the aeroplane industry here. The Valley and desert country beyond the low pass over Newhall present many advantages for testing purposes.

Van Nuys is the center of a great development, surrounded by productive land and is growing faster than most of us realize. I have just received a report on a survey made by the Department of Power & Light which reflects this rapid growth:

In 1922 there were 5 sub-stations with a capacity of 1,275 K.V.A. in San Fernando Valley. In 1928 there were 13 sub-stations with a capacity of 7,600 K. V.A. This is an increase of 496% in sub-station capacity in 6 years.

The number of lighting consumers increased from 1,376 in June 1922 to 9,799 in June 1928 -- an increase of 612% in 6 years, in San Fernando Valley.

The number of power consumers increased from 190 in June 1922 to 846 in June 1928 -- an increase of 345% in 6 years, in San Fernando Valley.

The total number of consumers increased from 1,566 in June 1922 to 10,645 in June 1928 -- an increase of 605% in 6 years, in San Fernando Valley.

The connected power load increased in San Fernando Valley from 2,119 H.P. in June 1922 to 17,896 H.P. in June 1928, an increase of 745% in 6 years.

The number of electric ranges increased in San Fernando Valley from 153 in June 1923 to 364 in January 1928 -- an increase of 138% in 4½ years.

Total revenue in San Fernando Valley for the fiscal year ending June 30, 1923, was $134,352.21. For the year ending June 30, 1928, this had increased to $482,703.45 -- an increase of 259% in 5 years.

The lighting revenue for that period increased 279% in the San Fernando Valley, and the power revenue 230%.

The total K.W.H. sales for the fiscal year ending June 30, 1923 was 4,581,625 K.W.H. in San Fernando Valley. For the fiscal year ending June 30, 1928 the figure was 19,229,658 K.W.H. -- an increase of 320% in 5 years in San Fernando Valley. During this period the light sales in K.W.H. increased 340% and the power 308%.

To indicate the development of use of appliances in San Fernando Valley the following figures are of interest:

The number of electric ranges in June 1923 in San Fernando Valley was 153. In January 1928 this had increased to 364 ranges, an increase of 138% in 4½ years.

The number of water heaters in June 1923 was 84, in January 1928 there were 226 -- an increase of 169% in 4½ years in San Fernando Valley.

17,000
90,000.

15,000
3,000

5.

35
33
133
35
1163

34

1344
18,000
3020
1,00
1966

10 966

96

201

In May 1925 there were 3 space heaters with connected load of 4.3 K.W. In January 1928 there were 62 space heaters with a connected load of 98.8 K.W. This is an increase for the 2½ year period of 2,197% in connected load in space heaters in San Fernando Valley.

Most of this growth in heavy duty appliances has accrued in the last two years or less when a more advanced policy with respect to such business was inaugurated by the Board.

The present rate of installation of major appliances in the Valley is illustrated from the report of August 1928, when 12 ranges were installed, totaling 91 K.W., 9 water heaters were connected, totalling 26.5 K.W. and 3 electric refrigerators. In the month of September 1928 17 ranges of 123 K.W. capacity and 15 water heaters of 48 K.W. capacity and 8 electric refrigerators were installed in San Fernando Valley.

In this connection our figures of average cost of operating major appliances are of interest. These are the result of a careful investigation made January 1, 1928, and the figures in every case include all lighting, inasmuch as the light and appliance use is on the one meter:

260 consumers having ranges only - average monthly bill $6.05 (including lighting).

52 consumers having water heaters only - average monthly bill $5.57 (including lighting).

65 consumers having space heaters only - average monthly bill $6.68 (including lighting).

117 consumers having ranges and water heaters - average monthly bill $10.91 (including lighting).

15 consumers having ranges and space heaters - average monthly bill $16.46 (including lighting).

Experience has shown that for the average family of five, the expense of operating an electric range, exclusive of the light, is from $3.00 to $3.50 per month.

To keep pace with this growth and meet the Valley needs of the future, immediate steps should be taken to secure a new City Hall as the present one has been inadequate for a long time and

the departments are being scattered about and some of them may be taken back to the main City Hall in Los Angeles, to the great inconvenience of all living in the Valley.

Plans for a substantial building for the depot property have been under consideration for some time. I hope that these new activities will warrant a suitable improvement there in the near future.

The semi-retired man who has come to Southern California with his life savings, determined to settle down and take things easy for the rest of his days, finds the home of his dreams in San Fernando Valley.

With the natural resources at our disposal we should be able to attract half of the next million residents that settle in Southern California. Our success or failure in doing this will depend upon how wisely we handle our natural resources, and how much a unit we can be on the vital things.

A man can buy vacant lots anywhere he goes in Southern California, but San Fernando Valley has a monopoly on garden acres with water in the city limits of Los Angeles.

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Remarks by W. P. Whitsett before the Board of Directors, San Fernando Valley Branch of the Los Angeles Chamber of Commerce, January 8, 1929----------

Mr. Chairman, Gentlemen:-- I feel very humble in the approaching shadow of the tremendous undertaking of bringing to this Coastal Plain water from the Colorado River. I would be timid indeed if I did not realize the very great importance of this endeavor.

Water will be such an important factor in our growth and development that I have no hesitancy in saying that I would not pay the next instahlment of taxes on the best located piece of property on this semi-arid Coastal Plain without knowing there would be water available to put it to the most economic use for which it is best adapted when needed.

We do more in anticipation than we do after the accomplishment of great undertakings. Probably no subject since the recent Great War received as much publicity as the discussion of the Boulder Canyon Dam, and this discussion has no doubt postponed the coming of many thousands to Southern California. Now that the word has gone out that the Boulder Canyon Dam will be built, I believe we can look forward with a confidence that there will be a greater number trking to Southern California than ever before. Our Board of Water and Power Commissioners have anticipated this influx of settlement and we have recently renewed our purchases of lands in Owens Valley. We are now carrying on experiements here in the San Fernando Valley.with a view of storing our surplus water in the underground gravels in the lower basin of the Valley which is cut through the center by the Big Tujunga Wash and bounded on the South and West by the Los Angeles River. These two channels bring 20 to 30 feet below the surface, together with our pumping plants, will be the positive factors in controlling the

water table, and we have reasons to hope that probably as much as one quarter million acre feet of water can be stored under the lower portion of the San Fernando Valley without detrimental effect to plant or tree growth. We look forward with considerable assurance in caring for the additional water needs which will result from this growth. I do not believe it beyond the realm of possibility to anticipate the Six Hundred Thousand horse-power of cheap electric energy, as there can be little doubt in my mind that if a proper economic study is made, that it would show it only good business to make rates which would induce very large new consumers of electric energy to locate here at as early a date as possible, as the loss sustained in creating a market now for the cheap electric energy which the City of Los Angeles will undoubtedly have to agree to take will be no greater than to take this energy later without an established market. This is a personal thought which I am expressing as a member of l long standing in the Los Angeles Chamber of Commerce, and not as a representative of the Department of Water & Power, or as a director of the Metropolitan Water District, and Mr. Secretary, you can take the liberty of making an appointment between ~~me and~~ Mr. Arnell and myself, the Secretary and General Manager of the Los Angeles Chamber, to discuss this matter with a view of formulating, if possible, some workable plan to be presented to our respective boards later.

To be sent to Owens Valley papers and the settlement committees and LA papers

A STATEMENT OF FACTS BY THE BOARD OF PUBLIC SERVICE COMMISSIONERS
OF THE CITY OF LOS ANGELES CALIFORNIA April 23rd 1929

On March 25th 1929, the Honorable Henry E. Carter introduced into theLegislature as Senate Bill No. 849, an Act to enable the people of the Eastern Sierran region to annex that territory to the City of Los Angeles if upon full consideration of all the facts they should afterward so decide.

This Bill is plainly and simply worded to bring the old Annexation Act of 1889 up to present-day conditions. It is not the only measure of the kind before the present Legislature, as the Senate yesterday unanimously passed another Bill at request of the Sacramento district enabling a suburban territory to annex itself.

Senate Bill 849 (Carter) reads as follows:

> "New territory may be added to any incorporated city or town and incorporated and included therein and made a part thereof, whether such territory be in the same county as such city or town or be contiguous to such city or town or not, whenever such territory is embraced within the drainage basin of any stream from which such city or town obtains a supply of water for the use of itself and its inhabitants, upon proceedings being had and taken as in this act provided."

Passage of this Bill is therefore a necessary preliminary to any discussion of annexation, which could only be accomplished afterwards by a special election, w hich election could not be called if a majority protested against it. In any case, majority approval at a duly called election is necessary to annexation.

The present Legislature expects to adjourn about May 10th. Unless the Carter Bill is passed in the meantime, nothing further can be done about annexation until the Legislature of 1931 -- if then.

This Public Service Commission finds many believing that the best and only method of settling differences and broadly advantaging the Eastern Sierran section is by its annexing itself to the City of Los Angeles.

Such feeling forces us to state these facts, so that people of Owens' Valley, as prospectively the greatest beneficiaries, can at once decide whether they wish now to let the question of annexation be settled, perhaps for all time, by failing to support the Carter Senate Bill 849 or prefer to give themselves, by passage of such Bill, the opportunity to thoroughly discuss and decide and determine all matters relative thereto, before calling a special election to vote upon annexation.

This appears to be one of those unfortunate situations wherein the will of a minority might be inflicted upon the uninformed majority, as such short time now remains to secure the necessary enabling act from the Legislature, in order to give the majority their right to express their desires at the polls later.

DEPARTMENT OF WATER AND POWER, CITY OF LOS ANGELES

By ------(Officers and Commissioners)

(or, the Commissioners as individuals)
(or, a statement by Gen'l Manager Van Norman)

Something along these lines, coming officially, is what the situation req

Water

Through the medium of the State Legislature, newspaper advertisements and printed folders, a group of individuals in Owens Valley have been waging a bitter attack upon the Board of Water and Power Commissioners of the City of Los Angeles. Their purpose in making this attack is two-fold; First, they seek to sell at unreasonable prices the ranch land still held in private ownership in the Valley. Second, their cupidity aroused by the liberal prices already paid by the City for water land in their region, they now desire to extort additional millions as "reparations" for the businesses and properties in the Valley towns.

We believe the time has arrived when the people of this City and state are entitled to know the truth of this situation, and we therefore submit for public consideration a statement of the facts.

Never in its history has Owens Valley prospered and increased in wealth as it has in the past twenty years during which time the City has been operating its Aqueduct in that territory.

Owens Valley, practically the only portion of Inyo County under development, is an area encompassing approximately 2,000 square miles and was settled as an agricultural region in the early seventies. In 1905, two years before the City began work on the Aqueduct, Inyo County had an assessed valuation of $2,487,000. In 1915, two years after the completion of the Aqueduct, the assessed valuation of the Valley had increased to $7,628,000 and today the County Assessor's rolls give Inyo County an assessed valuation of $11,347,000. Such a steady and relatively great increase in assessed valuations does not indicate that the Valley has suffered at the hands of the City of Los Angeles.

When the City entered Owens Valley to construct the Aqueduct it found that region largely a raw frontier territory without even a railroad connection with the cities and markets of Southern California. The City,

requiring rail transportation to handle its construction materials, entered into an agreement with the Southern Pacific Company which resulted in that Company building a standard gauge railroad from Mojave to Lone Pine in the Valley, a distance of 120 miles. Thus, through the City's efforts, was Owens Valley given its first standard railroad connection with the outside world.

Owens River and its tributaries in the Valley are the water supply sources of the Los Angeles Aqueduct. Prior to the construction of the Aqueduct a good share of this water was unused by the Valley ranchers and was wasted into Owens Lake.

Before the City constructed the Aqueduct it secured its rights to appropriate water from Owens River through filings granted by the State of California and the United States Government. On the basis of this right it has proceeded in good faith to invest more than $44,000,000 in the construction, development and maintenance of a water storage and supply system.

Ever since the Aqueduct was placed in operation, the City of Los Angeles, through its responsible officials, has attempted to work out with the Valley residents an equitable agreement concerning the division, storage and use of the available water in Owens River.

In 1921 it appeared that at last an agreement had been reached. The plan outlined called for the expenditure of several millions of dollars by the City of Los Angeles in providing water storage and conservation facilities largely for the benefit of the ranchers. As a part of this program the City, in good faith, began the construction of a dam in Owens Gorge for the purpose of creating a storage reservoir in Long Valley. This work was halted when an injunction suit was filed by W. W. Waterson, Owens Valley banker, acting as president of the "Owmes Valley Protective Association" restraining the Department of Water and Power from building the Long Valley reservoir dam.

Beginning in 1922, a series of abnormally dry years cut short the water supply in the Owens River basin. The City of Los Angeles was con-

fronted with the threat of a serious shortage of water from Owens River. To prevent such a shortage the Department followed the only course possible; it authorized the purchase of water land along the east side of Owens River. The prices offered for the land were extremely liberal and were gladly accepted by the land owners.

At the same time an exhaustive survey of the water resource of Owens Valley was made by a board of engineers composed of Louis Hill, J. B. Lippincott and A. L. Sonderreger. Their findings revealed that in normal years there would be sufficient water available in the Valley to irrigate 30,000 acres of land and meet the needs of the Aqueduct, as well. Accordingly, the Department formally offered to establish a policy of land purchases that would leave 30,000 acres of the best land in the Valley under private ownership. The Department further officially offered to carry forward such water storage and conservation measures as would assure this 30,000 acre area a 100 per cent water supply at all times.

This offer was refused by the Valley people who asserted that nothing short of the purchase of all the agricultural land in their district would satisfy their demands. This declaration was followed by the dynamiting of the Aqueduct. On October, 1924, Mark Q. Waterson, brother of W. W. Waterson, appeared at the head of a mob who took possession of the Alabama Spillway gates of the Aqueduct and diverted its entire flow for a period of three days upon the barren wastes in that region.

To protect its Aqueduct water supply the City set about to purchase all the agricultural land in private ownership above the Aqueduct intake.

In the purchase of this land the Department of Water and Power and its officials were assisted and advised by a special committee of citizens composed of William Lacy, O. M. Souden and James A. Anderson.

To further assure fair dealings with all the landowners selling to the City, the Board appointed the most competent citizens of Owens Valley to act as a board of land appraisers. These men are George Naylor, chairman of the Board of Supervisors of Inyo County and Federal Tax Appraiser for that

region, Vivian Jones, County Assessor of Inyo County and U. G. Clark, former assessor.

As a result of the land purchases made by the City in Owens Valley there has not been one single person who has complained after selling to the City that he did not secure a fair price for his property.

Since 1923 the City has paid or contracted to pay $12,000,000 for approximately 70,000 acres of land in the Valley. The purchase price paid for these lands was on the basis of 4.1 times their assessed valuation. Whether or not these prices were liberal may be judged when it is understood that the properties' market value is commonly estimated to be about two times the assessed value.

More than 70 per cent of the ranches purchased have been leased to tenants, in many instances the former owners, and these lands are being retained under cultivation. Additional leases are being made each day. Some of the areas purchased have little or no value for agricultural purposes, and never did possess such value.

Hundreds of the City's employees, engaged in the operation and maintenance of the Aqueduct and on new construction work are stationed in the Valley. The City's payroll in the Valley now amounts to more than $100,000 a month, and this payroll contributes materially to the prosperity of a region whose total population is 8,000.

The City is by far the largest taxpayer in Owens Valley. Its tax bill for the present year amounted to $144,000 or 43 per cent of the total County taxes.

Despite the repeated charge that Owens Valley towns are being depopulated and impoverished, there is evidence on every hand of business improvement and extension in these communities. In Bishop, its theatre building is being enlarged and improved, the Waterson Bros. garage is being enlarged by a steel frame addition, and two new auto camp grounds with frame cottages are being established.

In Big Pine, two automobile service stations are being improved

and enlarged, and one of its restaurants is being enlarged and improved.

In Independence, county seat of Inyo County, a beautiful hotel has just been completed, a new restaurant has been opened and two garages are being enlarged.

In Lone Pine, a block of four new store buildings are under construction, two garages have been enlarged and a modern hotel, built only last year, has just completed the construction of an addition.

According to the published statements of the banks themselves, the bank deposits in Bishop, largest town in Owens Valley, show a 21 per cent increase as of December 31, 1926 compared with December 31, 1922. The deposits for December 1922 were $1,972,720 and for December, 1926, $2,385,411.

Owens Valley railroad freight shipments for the month of February, 1927 showed a 28 per cent increase over February of 1925.

Purchase of automobiles has come to be regarded as one of the best barometers of any community's prosperity and buying power. In Inyo County state records reveal that the annual registration of automobiles for the year 1926 has increased 435 per cent over the year 1921; the number of cars registered being 76 for 1921 and 407 for 1926.

All of this growth and these improvements have been made in the face of an organized attempt on the part of the Waterson brothers and their agents to advertise to the world that their towns and ranches are on the road to absolute ruin. They are being made despite a well recognized effort on the part of these same persons to discourage and block new business enterprises in their communities.

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"THEN AND NOW"

The census taker has just made his rounds and found almost 1,500,000 persons living in the City of Los Angeles. An old associate of mine, who had seen our city grow from a small dusty Mexican village to the dynamic and vital community we see about us today, used to say "I don't know where they come from or what they are all doing here." (Judge Hutton) As remarkable as has been our growth, still more remarkable has been the fact that such expansion and change could have taken place in so short a time. Figuratively speaking, on one day we saw before us a quiet pastoral desert country by the great blue Pacific and a few days later a powerful energetic thriving community of homes and factories engaged in a commerce far-flung throughout the world. A truly magical transformation took place before our eyes. All of it within the span of one man's active years. Bill Mulholland, whose memory and accomplishments we are here gathered to revere and commemorate, in this fitting way, dedicated his life to the transformation. He had the vision as he labored with pick and shovel in the ditches which served the village with its meager water supply not only to see what the future held in store but also to see what must be done so that that future might be realized. With his keen and penetrating powers of observation he studied the fertile sun-drenched hills and valleys he loved so well and knew that without an assured and dependable water supply the infant community of Southern California was doomed to perish or struggle along feebly and uncertainly from year to year.

Without the security of water he knew the desert must win sooner or later. Time and again he saw the havoc and suffering that followed when the rains did not come. He saw the skeletons of sheep, the cattle, and the horses which measured the wealth of those days, where they had perished by the thousands when the springs and the grasses failed. I personally saw much of Bill and his work in those days. When I first drove my horse along the winding dusty road that led from the fields and scattered residences of Hollywood over the Cahuenga Pass into the great San Fernando Valley, I paused at the crest of the hill to survey the sight before my eyes. As far as sight could travel there spread below me to the encircling hills a rippling yellow sea of grain awaiting the harvesters. Here and there nestled a weatherbeaten ranch-house among a few tall trees like little oases on the desert. That was before the building of the Owens Valley aqueduct. Never has a work of man better portrayed the character of its builder than that great project does Bill Mulholland. Its daring and vision, its simple rugged construction, the economy and efficiency with which it was built, and probably greatest of all the sterling qualities of heart and mind which inspired a little community to place its wealth and trust in the hands of a immigrant Irish boy who would not fail them.

If today you follow the footstep of my horse that summer day almost 40 years ago you see a sight typical of the sweeping transformation that Bill Mulholland and the aqueduct he envisioned made possible in Southern California. The winding dusty road is gone. In its place an ultra-modern

streamlined speedway carries comfortably and swiftly going and coming a constant stream of high-speed traffic. The fields of yellow grain are gone. In their place, as we survey the great Valley from the highway, looped like a carelessly tossed lariat along the crest of the hills to the South, that fittingly bear the name of the man we are here today to honor, we gaze upon one vast garden. Wide concrete streets and roads cross in all directions linking town to town. Colorful garden homes deep in flowers and productive trees and vines make a living Persian rug. But most of all we know that in that pleasant scene live hundreds of thousands of happy people enjoying the best that nature can produce. That is the drama of Southern California. A great city with humming factories engaged in ceaseless commerce at home and abroad and a great and growing population living in the heart of nature! And no man more than far-seeing Bill Mulholland with his constructive genius can be truly said to have been the master dramatist. Before he laid down his tools Bill had started well on its way a new and larger drama of water. The Colorado River Aqueduct which he conceived and started will reenact to his further glory and our indebtedness to him a new epoch in Southern California greater and more abundant in human values than even his penetrating vision encompassed.
We are now on the threshold of the "City of Tomorrow." This beautiful monument will enshrine the worth of the man who made it possible.

W. P. Whitsett

TALK TO BE PRESENTED AT SAN BERNARDINO

JULY 28, 1930

ON THE OCCASION OF THE BOULDER DAM CELEBRATION

By W. P. WHITSETT, CHAIRMAN,

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

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Ladies and Gentlemen:

Last Friday Mr. Harbison, your Director on The Metropolitan Water District Board warned me that I would be called upon to make a few remarks tonight. My first impulse was to decline but, inasmuch as The Metropolitan Water District represents every portion of this Southern California Coastal Plain, I realize that it would only be proper that some one from its Board address you. We are all parts of the same economic area and our common problems of water supply, and otherwise, are going to force us to become more and more closely related as time goes on.

Your hospitality tonight has been very delightful, and on behalf of the Directors and their guests I wish to express to you our appreciation. Since arriving in your city late this afternoon we have been served a delicious dinner and have taken part in your magnificent parade with its seemingly endless succession of bands and drum corps and beautiful floats. Those who are responsible for this great celebration are to be highly complimented.

The outstanding thing that I have witnessed here tonight, not excepting your parade with all its beauty of music and decoration, is the great enthusiasm on every hand. It is splendid! You are not only enthusiastic over the passing by Congress of the first appropriation for Boulder Dam, but for your Congressman of this district, the Honorable Phil D. Swing, to whom much of the credit must go. It is only right that you should be enthusiastic for Phil Swing!

As a representative of The Metropolitan Water District I feel I would be disloyal to my associates in that organization, as well as to the people of the community in which I dwell, if I did not voice their sentiments and my own upon this occasion.

Phil D. Swing was a new-born infant in this city not so many years ago. Now he is a distinguished Congressman from this district who is being welcomed on this occasion for his personal merit and notable achievements. Mr. Swing, while yet a young man, has been given a well deserved place among public men of this country for conspicuous service. During his career as a member of Congress from this district he has devoted himself with great industry and intelligence to the discharge of his many duties. He has done his work wonderfully well. The benefits accruing from his efforts have not been confined to his district, nor even to his state. His name is indelibly impressed upon the legislation which has made possible the Boulder Canyon Project. The construction of that project is of nation-wide importance. It will do good to millions of people through all the years to come.

The Swing-Johnson Bill has for nearly ten years been known throughout this land as a piece of legislation of the first rank and importance. That bill has become the Boulder Canyon Project Act, and the Boulder Canyon Project Act resulted in the making by Congress, at its last session, of the initial appropriation of over ten million dollars for the beginning of work on the Boulder Canyon Dam.

Mr. Swing led the fight in the House of Representatives for the passage of the Act and the making of the appropriation. His eloquence, skill and magnetic leadership were crowned with success.

Today he is being welcomed upon his return from his labors in Washington. The representatives of The Metropolitan Water District hearily join with his neighbors here in San Bernardino and his friends throughout this state in extending to him a heartfelt and sincere greeting, together with the assurance that his conspicuous services in behalf of his fellowmen in this southwest country will never be forgotten.

San Bernardino has had other celebrations, but never one so great as this. About a half century ago, on November 15, 1885, the entire city turned out with bands and fireworks and parades to celebrate the coming of the first transcontinental train from Kansas City. The California Southern extension from San Bernardino to Barstow had just been completed. This event was significant because it meant that San Bernardino was destined to become a great city. The coming of the railroad meant that

the products which could be grown so abundantly and profitably in the fertile soil of this region would have an outlet in the great markets of the East.

The celebration tonight marks another step in the fulfilment of that destiny. Without Boulder Dam, the celebration in 1885 was in honor of an empty promise. Tonight we are celebrating the assurance that that promise will be fulfilled. Situated here against the beautiful Southern California mountains, among golden orange groves and agricultural wealth, is located your prosperous city. Radiating like the spokes of a wheel are three great transportation systems, linking your farms and industries with the great centers of population of the United States. You have the industries, and the perpetual sunshine, which makes cheap production possible. In addition to these, you have that invaluable element of enthusiasm, without which no great achievement has ever been accomplished.

In fact, and in summary, you have everything necessary but an adequate water supply--and this is true of every city in Southern California. The promise of growth which was given when the first railroad train steamed into San Bernardino on November 15, 1885, will be completed when the Boulder Dam water is brought into Southern California by The Metropolitan Water District aqueduct. If San Bernardino is willing to stand still and forever remain a city of 37,453 population, it will not need this water. But it does not want to stand still! It wants to grow, and it will grow! And the same is true of every other

Southern California city. When that stream of water is delivered into your economic channels, nothing more is needed but to allow your great enthusiasm to operate upon your potentialities.

I congratulate you upon your foresightedness in being one of the original cities of The Metropolitan Water District. In the years to come the water which San Bernardino will acquire by its membership in the District will cause this and the other Metropolitan Water District cities to dominate and control the growth of this area.

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Brother Jonathan Bond
A BUTLER PAPER

Johnson
Isner
Long Beach
Kinsey

This Boulder Dam project reminds me of an occasion back in Indiana when I was a young man engaged in the coal business there. John R. Walsh built a coal road down near Bloomington opening up a section of Indiana where some of the old settlers had lived their lives without ever seeing a train. When the road was completed a fine Pullman train was arranged to make the first run carrying the inspection party, coal operators, patrons and friends of the enterprise.

The Hoosiers turned out at every station. At the larger towns the bands played. There was speechifying and a general celebration all along the line.

Near Bloomington a typical Hoosier with linen duster and chin whiskers arrived when the party was about over. He crowded in as close as he could get and stood in excited wonderment gazing at his first train. Someone reached over and tapped him on the shoulder and said, "Uncle Jerry, what do you think of her?"

"B-- b-- b-- by Gosh, they'll never start her," he stammered.

About that time the conductor hollered All Aboard. The engineer rang the bell, opened the throttle and the train started forward.

Some of us watched for the effect on Uncle Jerry and heard his interrigator inquire -- "Well, Uncle Jerry, what do you think of her now?"

"B-- b-- b-- by Gosh, they will never stop her!"

Our communities are interlaced one with the other, not only by paved highways, Steel rails, Telephone and telegraph connections, but by the intemacies of innumeral commercial activities and it should be our united effort to strenghten that interlacing by rivited steel mains through which will flow the life giving water of the Colorado River at the earliest practicable moment, to the end that all may share in the general prosperity and waalth to be created on this Coastal Plain of Southern California by our life blood of Industry--WATER .

On behalf of the Board of Directors of The Metropolitan Water District of Southern California, I wish to express to you our sincere thanks for your bounteous hospitality and for your good offices in giving us an opportunity to see at first hand much of the area now within your Water Authority, and your existing facilities. In traveling over this beautiful section of California, one is tremendously impressed by the growth and development that has taken place during the past few years. You have the soil and the climate that invites healthy and continuing expansion. You have the people to provide the manpower to carry forward a great program of prosperous development. I need not tell you that you require only the basic necessity of water - a dependable, permanent and adequate supply of water - to give you the golden key that will open the doorway to a future of security and continuing growth.

There is one hard and fast law of the old Southwest that still remains in full and positive control. It is a law and a rule that always controls the destinies of men who live in a semi-arid desert region. It is the law of the water hole. And under this law our people have learned - sometimes to their sorrow - that there is rarely sufficient water available to supply fully the wants of all. In every semi-arid region we find that some of the people are willing and ready to stake their resources in a plan of action that will assure them an adequate and fair share of the precious substance of life from the water hole within their territory. And there are usually others who are reluctant to face the hard, cold facts.

They sometimes seek to convince themselves, and others as well, that no extraordinary effort is needed on their part to obtain the water that is so essential. And then, it almost always turns out that there is not enough water in the water hole to meet fully the needs of all. And for this reason it usually develops that the last ones to reach the water hole find themselves out of water - and out of luck.

Southern California, in common with all semi-arid regions, is a land that is visited at intervals by devastating and deadly droughts. It is the visitation of these droughts that usually awakens the people of vision and energy to action. We have learned that we cannot build our communities on the expectation that years of normal or above normal rainfall will continue to bless us. We have learned that we must plan and prepare for the years of drought. This lesson was driven home to the Los Angeles metropolitan area shortly after the completion of the Owens River aqueduct. It was even more apparent in the late 20's, when for several seasons the towering peaks of the Sierras lay barren of snow. In those years Los Angeles was forced to take extreme steps to draw from underground basins locally and in the Owens River Valley every drop of water available. In those years the great metropolitan area of Los Angeles frequently found itself with only a few days water supply on hand and available for its homes, its groves and its industries. Had the drought extended over one more season the Los Angeles area would have suffered property and business losses amounting in one year to many times the cost of the Colorado River aqueduct that later was financed and built.

It is because men in portions of California have possessed the courage and have been willing to stake their fortunes to provide against drought by the building of great and costly water supply systems that California has gone forward with an ever accelerating pace in our country's march of progress. As we look back over the past twenty years we see that when the cities of the Metropolitan Water District planned, financed and built the Colorado River aqueduct they must have been guided by the hand of Providence. The aqueduct was financed and built during the dark years of depression. It took faith in the future of Southern California to do that kind of a job back in those hard, lean years. And it required an enormous investment of money. But the people of the cities which comprised the Metropolitan Water District pressed forward with the great aqueduct project. The aqueduct was built, - and was placed in operation - in the summer of 1941. A few months later America was plunged into the war. Southern California found itself on the front lines of a terrible struggle that swept over the boundless width of the Pacific. There arose the sudden need for the concentration within this western area of millions of fighting men. There came the imperative need for gigantic industrial operations. For all these there had to be the assurance of an ample and dependable water supply. The positive assurance of such a water supply was provided by the Metropolitan aqueduct. There is no need to review the history of the past four years. We all know what was accomplished and how the efforts of this section of America helped so materially to bring victory to our cause.

During those years this region was blessed with seasons of above normal rainfall, but there was no assurance that this above normal rainfall would continue from season to season. And the Coastal Plain of Southern California would never have dared to embark upon such an ambitious program as it did assume merely on the hope that rain would come.

The end of the war finds all California heading straight into an era of unprecedented expansion and development in every field. California during the past few years has firmly established itself as a leading state in population growth, in the value of its agricultural products, in the expansion of its industries. In California the trend is definitely and certainly a trend to greater and ever greater development.

In January of this year the estimated population of California was 8,842,000. It is exceeded in population by only two other states, New York and Pennsylvania. In 1944 California led every state in the Union in the cash value of its agricultural products. The annual per capita income of the people of California far exceeds the national average and is topped only by the per capita income of the people of Connecticut.

Leading most other parts of California - at the present time - in population growth, in the individual earnings of its people and in the value of retail trade are the counties of Los Angeles and San Diego. In population Los Angeles County leads all others, with an estimated population of 3,441,000, and standing fourth among the state's 58 counties is San Diego, with an estimated population, I am told, of 460,000.

The only other two counties now exceeding San Diego are San Francisco and Alameda. In the buying power of its people and in retail sales, we find San Diego once more fourth among the 58 counties of the state, topped only by Los Angeles, San Francisco and Alameda counties, in that order.

The signs of the times are plain and unmistakable. All - or a large part - of Southern California is heading straight for a passage to unprecedented progress and prosperity. To make this passage into a future of security and continuing development every community in this part of the state must obtain its own ticket. This ticket takes the form of a guaranteed and adequate water supply. The areas - the people - who have the foresight and the plain common sense to reach out and invest in this ticket of passage - these areas and these favored people - will surely be on their way - with a clear track ahead. Those who hesitate - those who stand waiting for a free ride - those will be the ones who will find themselves hopelessly stranded on a desert sidetrack.

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Mr. Chairman, My old companions in battle, Ladies and Gentlemen:

It is most gratifying to participate in this meeting of the Colorado River Association which is to-day launching its program to advance and protect California's water rights on the Colorado River.

I am very grateful for the tributes paid me on this occasion and I accept them with that humility which comes from being honored by those whom I esteem most highly.

For over thirty years it was my privilege to serve in the advance searching parties in the struggle for water for this part of the United States. Those were wonderful years - full of work and satisfaction in the achievement of bringing water from the Colorado River to this desert land of California we love so dearly.

Now we have the water. The job of the future is to keep it. Like the precious liberties inherited from American pioneers, which we must constantly fight to preserve - so it is with water in desert places. In fact, eternal vigilance is the price of keeping anything worth having.

I am proud and eternally grateful for the high character - the outstanding ability - and the unselfish motives of the men with whom it has been my pleasure to serve on the Water and Power Commission of Los Angeles - the Board of Directors of The Metropolitan Water District of Southern California - and the Colorado River Board of California. And equally have we all a right to be proud of the fine new men coming to serve on these public boards.

Give them - I earnestly beseech you - officers and members of the Colorado River Association - all the people of this region - give them the strength of your active support - and the benefit of your counsel and advice - and always your personal attention to the all embracing problem of maintaining an adequate water supply for this place of Destiny.

At long last the American people are awakening to a rapidly broadening realization that in this Pacific arena - to an increasing extent - lies the fate of these United States - and, indeed, the whole world. To meet this challenge of the world of today and tomorrow, the people of America, as though guided by the hand of Providence, have turned their eyes toward this far western territory. By the thousands, by the hundreds of thousands, yes, by the millions, people from every part of the United States are moving into this western region. Consciously or unconsciously they are preparing themselves to be the writers of a new chapter in the story of our civilization.

For reasons profound and compelling a large part of this westward migration continues to head toward that portion of the Pacific area that is called Southern California. This mass movement of population confronts us with the need to provide in ever larger amounts the vital necessity of water. The water we require to support our present state of development in years of drought - and to support our constantly and rapidly growing needs - this water must come from the Colorado River. There is no other source now available to us.

Many years ago the people of this area staked out their legal filings for water on the Colorado River. We advanced the money to set under way the projects needed to bring under control the wild waters of the Colorado. We assumed an enormous financial load to finance the cost of essential water and power works. And now - it appears - we can hope to retain our just rights only by the united and vigilant efforts of all our people. It is to this great task - as I understand it - that the Colorado River Association now dedicates itself.

The people in the Colorado River basin who thus far have borne the cost of controlling and developing the resources of the river for the service of mankind - these people have supported and carried forward river projects that have paid their own way. The people of the United States have a right to insist that this policy be continued with regard to further Colorado River projects. When a new project for Colorado River water diversion is proposed the taxpayers of the United States have a right to insist that it

meet a reasonable test of feasibility.

The days of boondoggling in costly uneconomic public works ought now to have passed. There should be no place in the water hungry communities of Western America for billion dollar white elephants disguised as water projects.

There is need - there is grave need - in the communities of the Colorado River basin and in the South Pacific area for every gallon of water within economic reach of this Southwest region. And there is not enough water available to justify its dissipation on projects where the use of the water will not be of sufficient economic value to permit the repayment of its cost within a reasonable number of years.

California is a part of the Pacific area of the United States. If the United States is to realize its destiny at home and in the broad reaches of the Pacific, we must retain here in this territory the basic water rights we have thus far secured - and for which we are paying in full.

Our future security and our fate as an essential sector of America's western front can and will be measured in terms of water.

To you, President Hotchkis - and to you - the officers and members of the Colorado River Association - I say - Carry forward the good fight - press forward your task in good will - with unflinching courage - and with unflagging efforts.

In the service of the people of this vital sector of the United States there is no task more important - none more urgent. As a soldier in the ranks - I shall be happy to serve with you.

May God bless you - and guide you - in the days ahead.

* * * * *

Speeches

Municipal Power and the Roosevelt
"Rural-Industrial" Plan

To be happy and contented, people must have a sense of security --- an assurance that the future holds something permanent in store for them.

Pres. Roosevelt, in his national recovery program, has one outstanding aim in view -- to provide a secure future for the greatest possible number of families.

Challenging time-worn doctrines and theories, Pres. Roosevelt is putting the wheels of industry into motion with a whole new set of economic principles, blazing the trail toward a permanent, stabilized prosperity that will provide the kind of permanent security which the people of the United States want.

The general outline of the President's national recovery program is taking shape. Most of us are familiar now with the administration's plan to put into effect "a back-to-the-land movement that will work"; to decentralize industry by building small industrial centers in rural or semi-rural areas to provide jobs for those who move back to the land; and to provide cheap electricity to operate these plants and to make farm life easier, more comfortable and hence more attractive.

The successful outcome of this program will create what Pres. Roosevelt calls a "rural-industrial" population, made up of part-time or sustenance farmers, depending upon the land for most of their food, and supplementing this with an income from rural or semi-rural industrial centers.

This entire program adapts itself perfectly to conditions

as they exist within the City of Los Angeles. Although patterned to meet a national situation, the recovery machinery thus outlined can be put into motion in Los Angeles quicker than in any other part of the country, because we already have most of the requisites to put it into operation.

Within the city limits of Los Angeles, notably in San Fernando Valley, are thousands of acres of fertile land, served with city water under pressure, admirably suited for a "part-time" or "rural industrial" population. A back-to-the-land "part-time" farm movement has been gathering momentum for several years on these vast expanses of farm lands within the city limits, due in a large measure to the availability of cheap electricity from the Los Angeles Municipal Bureau of Power and Light.

Steam and electric lines, paved highways, adequate sewer facilities, schools, churches and community centers are available for immediate development of small industrial centers in farming districts within the city limits of Los Angeles, where jobs can be created for "part-time" farmers.

Within the city limits, we have fertile, irrigated land, cheap industrial and domestic power, plenty of industrial land available in the heart of semi-rural or farming sections, and adequate transportation facilities. On the other hand we have thousands of families who are seeking the security and independence which they can find on a part-time farm in conjunction with industrial employment.

The City of Los Angeles, with cheap industrial power, and all of our other advantages, is well able to set an example -- to be the oft-mentioned "yardstick" for the rest of the nation, leading the way to a safe, secure and stabilized prosperity, by

applying the principles outlined by Pres. Roosevelt. We are already years ahead in the development of these requirements which are a necessary and fundamental part of the "rural-industrial" program.

While many other parts of the United States are only in the primitive stages of developing rural-industrial communities, Los Angeles presents a well-rounded program of this kind, where opportunities are plentiful for those interested in President Roosevelt's "rural-industrial" plan. There are great tracts of low-priced industrial land within the city limits of Los Angeles, on steam and electric lines, and in the heart of fertile semi-rural areas, admirably suited for a "rural-industrial" development.

The Los Angeles Municipal Power Bureau can give you expert advice as to the availability of cheap industrial power and the desirability of various industrial areas in San Fernando Valley and other outlying districts from an economic standpoint and from the viewpoint of Pres. Roosevelt's national recovery program.

Let me now present Mr. W. P. Whitsett, Chairman of the Board of Directors of the Metropolitan Water District of Southern California. All right, Mr. Whitsett.

MR. WHITSETT

Mr. Smith has asked me to tell you why the Colorado River Aqueduct is being built by the Metropolitan Water District of Southern California. And he has asked me what the aqueduct is going to do for this region. The answers to these questions are simple to state - but they are of vital importance to Southern California and to every other part of this American Continent.

The aqueduct is being built because the people of the Metropolitan Water District have had the vision to see the basic necessity and the economic value of providing an abundant - and absolutely dependable - and a controlled water supply - a water supply that will safeguard their present and future development - a water supply that will make possible a program of growth and prosperity in the years to come. The use of this aqueduct water will be confined to the cities and areas which comprise the Metropolitan Water District - and each of these cities will share alike in the golden benefits of this everlasting water supply.

During the past few years the people of all America have awakened to the vital importance of securing an unfailing and controlled supply of water.

Here in the cities of the Metropolitan Water District of Southern California we actually are providing such a water supply. By the building of the Colorado River Aqueduct we have conquered ~~drouth~~ drought. And to all those who are now living in the thirteen cities of the Water District - and to all the countless thousands who in the future will come to live in these thirteen cities -- to all these people - the Colorado River Aqueduct gives the everlasting assurance of an abundant and unfailing supply of water.

ANNOUNCER

Thank you Mr. Whitsett. After that sprint down the tunnel I am just a bit out of breath - I must admit - but where I am - safe and sound -
Word has just come that all is now ready ~~for the electric charger~~ to set off the blast. The last of the powder crew has come back up here to the safety zone. Over there against the tunnel wall I can see the electrician raising his hand to the switch to set off the mighty charge of dynamite down at the tunnel heading. He is waiting for the signal to fire!
And there it goes!

Sound effects of explosion

Boom! Boom!

ANNOUNCER

That - ladies and gentlemen - was the sound of the explosion. Down here there was a terrific rush of air - a series of concussions that beat against the ear drums.

The tunnel air is heavy with the acrid odor of powder - and a wall of ~~dirt~~ dust and smoke is sweeping down the tunnel ~~before~~ toward us. Overhead I can hear the great air tubes going into action as they start the job of sucking and blowing out the smoke and fumes..... it means that another five or six feet of stubborn rock has been blasted away in this dramatic war against Nature.... another step forward in the completion of the giant aqueduct that will bring into the cities of the Metropolitan Water District of Southern California a new and everlasting supply of water.

We are very definietly in a period of decentralization.
America is returning to that rural life in which this great nation was born and bred.
In old England, with its centuries of accumulated experience in social organization, decentralization has been going on for centuries. The mark of distinction there is to own a country estate - however small. Long ago, they learned that the confinement of city life is not a healthful or natural way for a human being to spend his short span of years.
England knows that we, as a young nation, are just discovering, -- that the noise, the excietment, and the nervous strain of living in big cities does not begin to have the wholesomeness, nor yield the real sense of values gained by a country environment, close to gardens, flowers and animals--out under the trees and stars such as we enjoy here in the San Fernando Valley.
In crowded Germany this same thing is reported taking place. No doubt it has to some extent a military significance. Since the coming of the airplane they realize that congested manufacturing districts represent ideal bombing targets and they are now distributing their important manufacturing plants throughout the rural districts. They also realize the advantages of having their people live in the country where they can produce a part of their own food supply while maintaining production schedules in the factories.
The strength of France in the past has been largely derived from her strong peasant class. The small farms passed on generation after generation in the same families have furnished the Nation with the strong stock from which has been drawn the men that have maintained her military stability through an interminable succession of years.
We could go on to cite the illustration of the Scandinavian countries,

where there are few large cities and where most of the people live in small villages close to the soil and with their industrial activity scattered throughout the country.

Up until forty or fifty years ago the United States has been a rural country, primarily because of the great abundance of land. With the intensive industrialization since that time the farm boys have been attracted by the glamor of the big cities. This process was tremendously accelerated during the excitement of the war and resulted in a great mass-shifting of the American population. Following the war we all know what happened to the rural population. The inflationary prices paid for farm products proved very profitable to the mid-western farmers who sold their farms and moved to the cities. There, they revelled in the luxuries only provided by perfectly appointed apartments, - electric lights, furnace heat, telephone service, hot and cold water twenty-four hours a day, and the idea of "being in the midst of things."

But science was moving rapidly. Soon the picture changed.

Rural electrification, carrying with it automatic heat and water--and all the modern devices to make housekeeping easy and efficient; good roads all over the country and the radio to bring the world into the home and automobile--these made it possible to enjoy all city conveniences with the healthful environment of rural life. The American people, with a natural yen for the land on which their forebears lived, have turned from the city to seek suburban advantages.

I have pointed ou the foregoing to show what these social changes mean to the San Fernando Valley. I do not mean to imply that we are abandoning large cities completely. We will always have them. But gradually their character will change. It will always be necessary that a great many financial, industrial, and commercial activities, to be carried out efficiently, be grouped together. But with electric power and efficient

transportation available everywhere it is no longer necessary for industries to remain in congested areas. The cities of the future will spread out into great expanses of small farms and garden acres, such as we have here in the San Fernando Valley. It is not an accident that the San Fernando Valley is now taking out about half the building permits of the entire city of Los Angeles - it is the process of decentralization in operation. People are moving out the hotels and apartments to the more healthful and pleasant surroundings of the country with all the conveniences which the city alone used to provide.

Many years ago I predicted that when the advantages of the San Fernando Valley were fully recognized, one half of the next million increase in the population of Los Angeles would come to this mountain-walled garden. I believe that predication is now coming true. It was made possible because we have here an adequate and sufficient supply of wholesome water for all our purposes. The Colorado River Aqueduct now being completed has made our growth possible. As long as the City of Los Angeles depended soley upon the Ownes Valley Aqueduct the population of the San Fernando Valley was insecure. As the domestic and industrial demand of the city grew and the local water levels all over Southern California dropped year after year, we here in the Valley realized that the time was not far distant when we could not be certain of obtaining all the water we needed form the Owens Valley Aqueduct.

The coming water from the Colorado River has assured an abundance of this prime necessity of life,--and I think we can in no small degree attribute our present growth to the realization of that insurance and security. We have here all that education, science, and art have to offer, together with the enjoyment of a country environment. Now that we have an unlimited water supply, the drawing power of the Valley and the

population is only limited by the extent to which we take advantage of our opportunities.

The setup is ideal. It remains for us to see that we meet this opportunity and build soundly and wisely for the future.

If our service is to carry on, if our present form of government is to endure, then our leaders of thought and action will have to think more in terms of conserving our natural resources, planning construction, wealth-creating employment, to the end that our employable people may have work and the cost of government be lessened and the necessities and luxuries which enter into the standards of living are on our people reduced.

President Hoover, Secretary Wilbur and those other splendid leaders of our nation are to be greatly commended for making possible this great Boulder Dam project, for it embodies these fundamentals which make for stability of government.

Boulder Dam will creat a mighty lake 100 miles long, over 30 miles wide in places, and more than 500 feet deep at the dam. It will hold back the snow waters of the Rocky mountains which now rush in flood season uncontrolled to the Pacific Ocean, wasting not only this precious water in a desert country, but losing a million h. p. of electrical energy and threatening the destruction of the Imperial valley with its 60,000 producing citizens which supply the people of the United States with most of their winter vegetables.

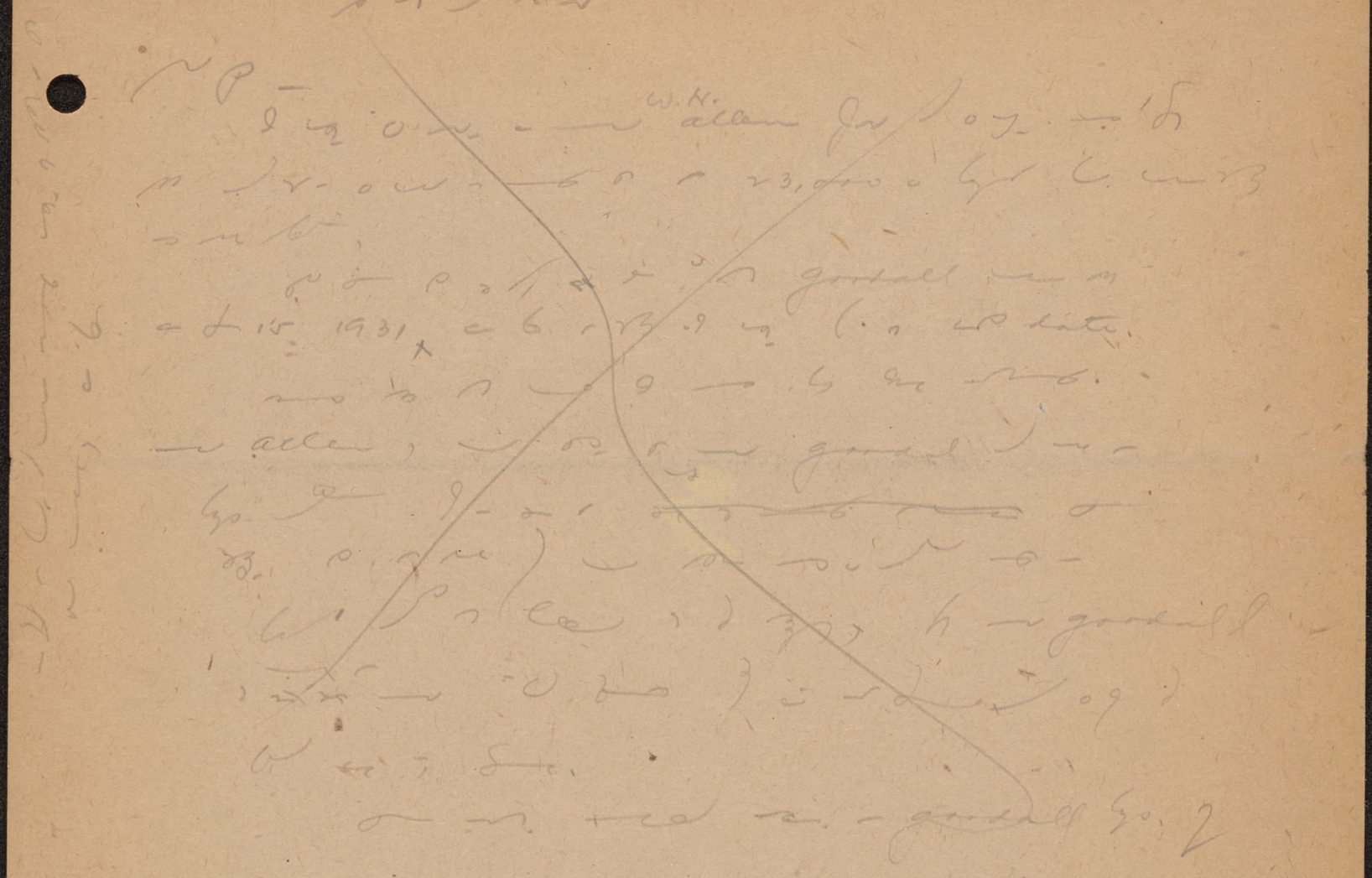
This Boulder Dam project will make possible water for the coastal plain cities of Southern California so they can continue their rapid growth in population and wealth, which has been made possible by the bounty with which Nature has combined in close proximity those conditions of ocean, valley, mountain and desert which so many of our wealthier citizens now enjoy in Southern Europe along the Mediterranean, thereby slowing down our own employment and diverting hundreds of millions of our gold reserve from the trade channels of these United States.

Nature has made the Pacific Southwest an economic unit. When this conserved water and cheap electrical power is added to ~~xxxxx~~ Nature's lures of climate and the constructive improvements of men in these desert cities of Southern California, the migration of people and constructive wealth will continue to double every ten years in the future as it has with increased acceleration during the past 40 years, doubling the production of Nature, people and agriculture of this whole economic unit. This would include Utah, Nevada, Arizona, California and adjacent states, not only creating additional wealth for agricultural land and mineral production of these states, but attracting to them men of enterprise and means to help in this tremendous development, for these treasure houses of redoubled wealth can not be from the energy of men of experience and means who are lured to Southern California by its attractions and then drive by auto through this wonderful back country over splendid roads, viewing these remunerative opportunities for development.

Nature in the bounty of her wisdom has made of the Colorado River basin an inseperable interwoven productive and consuming unit. Men and parties have made political subdivisions of it, and some have sought to make political capital out of setting one part against the other, but the party worthy of leadership and the true statesman is coming more and more to realize the importance of co-operation in the development of this original unit.

Never has an opportunity existed before to build so great an empire in so short a space of time as exists here today in this Pacific Southwest, where all the factors are known, and those required to be increased now about to be made possible by this project, where

so many people are anxious to come with their experience and wealth to be an integral part of this great development.



A SUMMARY OF THE METROPOLITAN WATER DISTRICT PROJECT

By

W. P. Whitsett,
Chairman of the Board of Directors

of

The Metropolitan Water District
of Southern California

October 28, 1930

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W. P. Whitsett

Prepared for presentation to the Members of the Water and Power Resources Committee of the Los Angeles Chamber of Commerce on October 28, 1930

At the request of Chairman Wheeler, I have prepared a statement covering the past activities of The Metropolitan Water District, and its program for the immediate future.

The District is now approaching the end of its second year, having been incorporated in December, 1928. The District is organized for the purpose of developing, storing, and distributing a water supply to the metropolitan area of Southern California. The physical area deemed to be a natural part of The Metropolitan Water District, extends from Santa Monica to East of San Bernardino, and from the Sierra Madre Mountains possibly as far south as Newport Beach.

At the present time there are eleven cities in the District: Anaheim and Santa Ana in Orange County; San Bernardino and Colton in San Bernardino County; and San Marino, Pasadena, Santa Monica, Burbank, Glendale, Beverly Hills, and Los Angeles in Los Angeles County. The cities of Ontario, Torrance and Fullerton have made application to join and will submit the proposition to their voters in the near future.

The necessity for an additional supply of water from a source outside of Southern California was emphasized by the drought of 1924. At that time the Colorado River Aqueduct Association was

organized with Hiram W. Wadsworth as Chairman. It was through the Colorado River Aqueduct Association that the Metropolitan Water District Act was introduced and passed by the State Legislature in 1927. After the Enabling Act was passed, the organization of the District was conducted by the City of Pasadena, and included the eleven cities first named.

HISTORY OF THE PROJECT

The necessity of bringing water to Southern California from the Colorado River was realized many years ago by William Mulholland, former Chief Engineer of the Department of Water and Power. In 1923 he made a personal reconnaissance of the region between Los Angeles and the Colorado River, with this in mind. Two years later, in 1925, the people of Los Angeles approved a $2,000,000 bond issue for the purpose of beginning the undertaking. The responsibility of starting the survey was assigned to the Department of Water and Power, The Metropolitan Water District not having yet come into existence.

After a careful investigation, the engineers determined that there were five points on the Colorado River at which it was feasible to build diversion structures. These varied from the Picacho near the mouth of the river, to the Bridge Canyon site about 400 miles upstream. The problem of building an aqueduct from any of these diversion points to Los Angeles involved the crossing of an unmapped area of mountains and desert. Before it was possible to make any estimates, it was necessary to survey 30,000 square miles of uncharted wilderness. The preliminary

work of mapping, estimating, exploring, and analyzing geology, has been carried on for over five years.

The Metropolitan Water District was organized in 1928 and immediately took over the direction of the work. Mr. Frank E. Weymouth was induced to take the position of Chief Engineer. He is undoubtedly the most qualified man in the world for the task. While Chief Engineer of the United States Reclamation Service, he wrote the Weymouth Report, consisting of four or five bound volumes recommending that the Boulder Dam be built at its present designated location. He has done engineering work throughout North and South America, having built over 40 dams. Just previous to his employment by the District, he was Chief Engineer for the J. G. White Corporation, which built a number of reclamation projects for the Government of Mexico, and was on his way to take charge of a gigantic project in Russia when employed by The Metropolitan Water District.

With the approval of the Board of Directors, Mr. Weymouth has built up an engineering organization which could not be duplicated in the United States. Upon his staff is Mr. Julian Hinds, who is considered one of the world's authorities on questions of hydraulic design. There is Mr. James Munn, Chief of Construction, who has had charge of numerous great projects throughout the United States, and recently completed the construction of the Mokelumne Aqueduct for the East Bay Municipal Utility District. There is Mr. J. B. Bond, Chief Field Engineer, who was at one time Topographer for the United States Geological Survey, and has been connected with flood control projects in China and

irrigation investigations in Mexico. The Hydrographic work is under the direction of Mr. C. C. Elder, who has been engaged in stream measurements and hydrographic reports throughout the West and Mexico for a number of years. The Electrical and Mechanical work is under the direction of Mr. James M. Gaylord as Chief Electrical Engineer. Mr. Gaylord is recognized as an outstanding authority in his line and his services were obtained by special arrangements with the Southern California Edison Company.

The District obtained its first income from the tax levy of 1929-1930, and began spending its own money about a year ago. On the first of May of this year a complete separation was effected between the Department of Water and Power and The Metropolitan Water District. There remained at the time of separation, a balance of $253,000 in the bond fund of 1925.

A year ago Chief Engineer Weymouth rendered a preliminary report covering his work up to that time. For the purpose of analyzing this report, and of making an independent investigation and recommendations, the Directors of the District selected a Board of Review composed of three outstanding engineers. The men selected were Thaddeus Merriman, Chief Engineer of the Board of Water Supply of the City of New York; Richard R. Lyman, Consulting Engineer of Salt Lake City; and A. J. Wiley, Consulting Engineer of Boise, Idaho. They were chosen from engineers outside of Southern California in order to obtain a report from men who were unprejudiced and who would bring a fresh point of view and criticism to the work.

The District submitted to this Board of Review studies on 66 different routes from the Colorado River. After careful investigation, including many trips across the desert, they recommended that all but four lines be eliminated, and that special and revised studies be made upon those indicated. The Engineering Staff of the District has been engaged in this work since the first of the year and are now ready to submit a second report to the Board of Review, which will come to Southern California about the middle of next month.

The Metropolitan Water District has maintained a policy of rigid economy. No employees have been put on the payroll that were not absolutely needed, nor who had not previously demonstrated their capacity to do the work assigned to them. Following out this policy, the District has been very cautious in expanding its organization so as to avoid unnecessary expense. The Department of Water and Power is furnishing floor space at the very reasonable rental of 12¢ per net square foot per month. For some time the condition has existed whereby any further additions to the staff would require more room than was available at the present location. Consequently, offices have been subdivided and in some instances three or four men are making use of space usually assigned to two. The result has been to give the District very high value for the money expended.

The Treasury Department of the District has been organized with Mr. Charles H. Toll, First Vice-President of the Security-First National Bank, as Treasurer. Mr. Toll was drafted to the

position and serves without compensation.

The Accounting Department of the District has been placed under the charge of Mr. J. M. Luney, who is establishing not only a system of general accounts, but also an exact system to keep a running check on the engineering costs. Mr. Luney is eminently qualified for this work, having established numerous systems on engineering projects throughout the United States. He was also engaged for a number of years by the United States Government at Washington, D. C., where he installed systems for the various governmental departments, such as the Engineering Department of the United States Army, which has an annual budget of about $50,000,000 a year.

The big event in the history of the District was the negotiation of contracts for water and power with the United States Government, which were executed last spring. Under the terms of the Boulder Canyon Project Act, the Secretary of the Interior is required to have in his possession before construction can start on the Hoover Dam, executed contracts, which in his judgment would be sufficient to repay to the Government the money advanced, with interest at 4%. In the contract for water, the United States agreed to store and deliver to The Metropolitan Water District, not to exceed 1,050,000 acre feet per year at the rate of 25¢ per acre foot. The District's contract for power is an obligation to take and pay for 36% of the firm power to be generated at Hoover Dam, at the rate of 1.63 mills per kilowatt hour for falling water. In addition to the foregoing, the District has first right on all

the secondary power, at the extremely low rate of .5 mills per kilowatt hour. This power will be necessary in the event the District finds a route involving a pump lift the most economical, due consideration being given to both first cost and annual cost of operation.

While the District is most desirous of obtaining a gravity route, it was necessary to subscribe to the power at the time it was available. Every effort is still being made to obtain the advantages of a gravity route, but it must be emphasized that the District must make its selection purely on the basis of the best economic and engineering principles. Our determined purpose is to find the best, safest, and cheapest route.

The execution of these contracts by the District, and corresponding contracts by the Department of Water and Power and the Southern California Edison Company, has paved the way for the beginning of the Boulder Canyon Project. As you know, $10,660,000 was appropriated by the last session of Congress after a bitter fight, and the ceremony inaugurating the project was held the 17th of last month at Las Vegas.

In further establishing its claims to water from the Colorado River, the District has filed various applications with the Division of Water Resources of the State of California, and with the Federal Power Commission. Also, agreements have been negotiated with the agricultural interests, who have been using Colorado River water for many years. An agreement was reached whereby the District was accorded the right to 550,000 acre feet

of Class A water, and 550,000 acre feet from the Class B water, as against the rights of the agricultural group. In the interpretation of this agreement by the agricultural group, a misunderstanding arose which necessitated a supplementary agreement whereby the agricultural group conceded to The Metropolitan Water District the right to store in the Boulder Dam Reservoir, for the exclusive use of the District, the unused portion of its allocation up to a total of 5,000,000 acre feet. This arrangement has great advantages to the District in protecting Southern California against long periods of drought. The working details of this arrangement have been submitted to the Federal Government and are now being worked out.

ACTIVITIES OF THE DISTRICT AT THE PRESENT TIME

At the present time the District is engaged in making its final surveys. The work on the aqueduct routes is practically complete. Numerous details, such as finding storage facilities in Southern California, laying out distribution systems for delivering water to the member cities equitably and economically, are at present the major concerns of our Engineering Department.

The District is also giving serious thought at this time to the working out of its financial program. The Metropolitan Water District Act is being very carefully analyzed by experts with the view to having it amended in the coming session of the State Legislature in such a way as to give the District every advantage in obtaining a low interest rate and a favorable price for its bonds. For instance, it is proposed to make the bonds of The

Metropolitan Water District legal investment for savings banks. It is also planned to make them legal security for active and inactive deposits of the State and other political units.

Another problem on which the District is working at the present time, is the perfection of its scheme of organization. The objective in this case is to set up only those departments and positions that are absolutely necessary to carry on the District's program in the most efficient way. It is realized that by careful planning at this time, costly changes and reorganization will be avoided in the future. This also involves a plan of civil service, to assist in selecting high types of employees.

PROGRAM OF THE DISTRICT

Within the next month, Chief Engineer Weymouth will submit to the Board of Directors an extensive report setting forth the results of the five years of engineering work on this project. This report and all supporting data will be referred to the Board of Review previously mentioned, who will convene in Los Angeles the middle of next month. They will carefully analyze all the data, make independent investigations, probably order supplementary work done, and will submit their final conclusions to the Board of Directors about the first of next year. It is expected that in their report the Board of Review will recommend a route as being the cheapest and best possible.

Following this report, the Board of Directors will make preparations for submitting the proposition to the people for their approval. It is believed that all the work will be ready,

and that the time will be most auspicious during the coming spring. When the bonds are voted the District will expand its organization and begin the work, which should be under way about a year from now.

The present situation in Southern California is emphasizing the necessity of The Metropolitan Water District advancing its program with all possible speed. Never has the water situation been so critical as at the present time. The District has become a clearinghouse for information relative to water conditions in Southern California. Reports from city after city are to the effect that their wells have dropped two or three times more this year than ever in the past. Ontario is now pumping its water from 350 feet below the surface. Fullerton is very much concerned because its water tables are rapidly approaching sea level, being only about 20 feet above at the present time. At Gardena, to the West, water is already at sea level at a point 15 or more miles from the coast. The greatest fear is not so much the lowering of the water tables as that when a certain low point is reached, salt water will start moving further inland from the ocean. Already in Long Beach salt water has penetrated the area South of the Dominguez Hills, and is working inland at various points. At El Segundo salt water has reached inland a mile or more, and as you probably know, the Standard Oil Company is applying to the City of Los Angeles for the privilege of reclaiming 6,000,000 gallons a day of sewage water from the Hyperion outfall sewer to be used in its big plant.

With these conditions existing at the present time, and the prospect that water will not be available from the Colorado River for seven or eight years, the great question is, will we be able to get the water here in time to prevent Southern California from coming to a standstill and possibly losing millions of dollars in earnings and many millions more in values.

There is a brighter side to the picture, however. In fact as far as prospects of economic advancement are concerned, Southern California is in a most enviable position. The United States Government will, in the next six or seven years, spend upward of $165,000,000 on the Colorado River Project, much of which will find its way into this region. In addition, there will be the circulation among our people, of the money expended on The Metropolitan Water District Aqueduct, yielding similar economic benefits.

However, the real economic returns to the people of Southern California from The Metropolitan Water District Aqueduct, will be the security provided for our present investments and financial structure. Without an additional supply of outside water, Southern California is in a very dangerous situation. Colorado River water will do more than stabilize present values, it will make possible industrial expansion and the growth of business and manufacturing along every line.

VAN NUYS REAL ESTATE BOARD
ANNUAL MEETING JANUARY 15, 1931
- - - - - - - - -

Present Development Possibilities of San Fernando Valley

by

W. P. Whitsett

Shortly after the close of the World War I completed my development work in the planning and building of Van Nuys and the subdividing of several adjacent sections of land into 5-acre units on which various intensive agricultural industries were successfully established. A few years later, in about 1923, a condition was brought about whereby the prices of land here in the valley were being artificially inflated. I vigorously opposed the different schemes to create false values, and was bitterly attacked by some of their promoters.

In 1926 the City of Van Nuys celebrated the 15th anniversary of its founding. At the request of some conservative leaders of the community, I submitted a partial plan for the economic development of the ~~entire~~ San Fernando Valley.

The plan which I developed and presented at that time is too long to be read here. It has been printed by the Provident Building-Loan Association on the back of a map showing the San Fernando Valley and any interested person can

obtain a copy at the office of the Association. I would, however, like to read the last two statements contained in that plan of development. Remember the date this was written - 1926, five years ago:

SAN FERNANDO VALLEY CAN SUPPORT
100,000 FAMILIES

With the natural economic advantages found here, it requires no great imagination to picture 100,000 families happily and permanently employed--living in contentment in this wonderful Valley, less than ten years from today.

Think of it! Nearly 500,000 people--half the present population of the city of Los Angeles.

Think what it will mean in conservation of water to the great metropolis just over the hills!

Think of the wonderful opportunities for life in the open, in producing $50,000,000 of garden products annually!

Think of the great construction activities in the building of 100,000 homes at an average cost of $3,500--$350,000,000--$35,000,000 a year for ten years!

This is the greatest opportunity that has ever come for the building of a great self-supporting garden city--a city that will aid in the march of progress from the impossible, deplorable conditions,

from which people in congested Eastern cities are trying to flee.

Think of what an opportunity we have to contribute to better citizenship!

WARNING IS SOUNDED
ON NEEDLESS ASSESSMENTS

Now, just one word of warning!

These nature-balanced, carefully adjusted productive, educational, manufacturing and living possibilities can be destroyed forever by the activities of exploiting lot subdividers--by the voting of needless special assessment taxes--and by raising of land prices to a point where it becomes impossible to produce crops profitably.

These are pitfalls in the way--stumbling blocks in the path of a great community's progress toward broader, better things. They are obstacles plainly seen and recognized. By foresight and concerted action upon our part they can, and must be avoided, if we are to realize the high hopes and the great ambitions that are the natural destiny of our community.

We have stopped the strong forward march of constructive progress by our own foolishness. Our experience has demonstrated that it is always far more difficult to re-start a depressed constructive movement than it is to keep it going when once started. The downward movement accelerates itself.

For instance, cash buyers do not as a rule, purchase on a declining market. Also, values can not travel in opposite directions at the same time. They must be stopped from going down before they start up. However, there is every evidence that values can be here stabilized on the prevailing prices. But, remember, values can only be advanced after they have first been stabilized, on the sound economic basis following the principles of supply and demand. An opportunity exists for the stabilizing of values for there is no surplus of well-built houses on reasonably-priced acreage in the Valley. Furthermore, there is no surplus of houses on the front of well-located lots at present reproduction prices in this district when present reproduction prices are taken into account.

You men here tonight are holding the destiny of this community in your hands. I have always said that this is the best "hard times" community in America because with our ample water supply, there is work and a living for a family on every acre of this fertile land.

So we can start constructive activity here first -- we should start now. You men can bring about the proper economic cooperation between the over-special-assessed and over-taxed rancher who should be helped by a stabilized fair price before he is compelled to sell. The materialmen will undoubtedly be glad to cooperate in the furnishing of building materials at reasonable prices, especially if on a cash basis. Our capable

building mechanics who should be at work can be counted on to do their part. The financial institutions have the money to loan to conservative home-builders. Tens of thousands of families in Southern California, and tens of thousands more throughout the United States, would be anxious to come to the fertile San Fernando Valley if they only knew how productive an acre of land can be made with ample water, especially if they knew that it could be purchased with a well-constructed home on it at a price well worth the money, on the basis of existing standards of value.

These families I speak of have cash and incomes to justify such an investment and are hungry to get out on a piece of land where they can live under the warm sky of California, producing a comfortable living and conserving their incomes.

We have learned our lesson. We are rounding the corner. There are better times just ahead. Let us hasten their coming by getting together and planning for the future.

Our motto this year should be -- STRICT ECONOMY, MODERATE PRICES, MORE SERVICE, MORE CASH, MORE BUSINESS, LESS STRIBING FOR PAPER PROFIT, AND A GREATER NET CASH BALANCE AT THE CLOSE OF 1931.

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Mr. Charles H. Toll Radio Talk K N X Friday, February 13,1931 7:30 P.M.

Thank you Mr. Whitsett - -

Permit me to say - first of all - that as a citizen of Southern California and as one who has an abiding faith in the future of this country - I am happy to have the opportunity to serve the Metropolitan Water District to the best of my ability. There is no public problem more urgent than our problem of maintaining an adequate and a dependable water supply. For this reason, there is no task more important than this task of developing and bringing in a large supply of Colorado River water for the benefit of the cities in the District.

If one could feel that he had contributed - through his service - even a small bit toward the permanent solution of this water problem - that, in itself, would be compensation enough. Those of us who have been residents of this Southwest country for many years, have long since come to appreciate the importance of water in the life and growth of this region. During the past decade or so - however - there have come to live among us many thousands of persons who were born and reared in sections where water - as a rule - comes down from the heavens in plentiful quantities each year - in sections where water is taken for granted - almost as much as the air we breathe.

To those good people - it may be helpful to state - as simply as possible - just what we mean by this water problem of ours.

Southern California - as Mr. Whitsett stated a moment ago - is a land of sunshine. Occasionally - to be sure - we are visited by rain storms - such as those we have just been experiencing - but these rains come to us infrequently and the total quantity of water produced by such storms falls far short of supplying our actual day by day water requirements.

Mr. Charles H. Toll Radio Talk K N X Friday, February 19,1932 7:30 P.M.

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In other words - we are now - and for some time past - have been using a great deal more water in Southern California that is being replaced by either natural or artificial means. In truth - we are advised by our responsible engineering authorities that we are now actually using in Southern California approximately 170 million gallons of water each day MORE than is being replaced by either Man or Nature. Temporarily, we are getting this 170 million gallons each day by dipping down into our underground water reserves and taking out of our water savings account - if you will - this enormous quantity of water.

It has taken Nature hundreds of thousands of years slowly to accumulate the water we have found in the underground basins of Southern California. During the many thousands of years that passed before man came to this region, and began to develop this area - this water had been gradually trickling into these underground channels; During the past twenty or twenty-five years - however - we have been pumping out of these underground basins the water which it required many thousands of years for Nature to accumulate.

Even a moment's consideration of this condition reveals that we are bound - very soon - to strike the bottom of the well unless we halt our present overdraft against our reserve water supplies.

Evidence of this heavy overdraft of water is all about us. A quarter of a century ago - there was an area of about 350 square miles in Southern California where artesian wells were flowing freely. Today artesian wells practically have disappeared in Southern California - and <u>all</u> the wells are dropping - dropping year by year.

In every section of Southern California essentially the same water conditions exist. Everywhere we find the water levels dropping rapidly away.

In other words - we are now - and for some time past - have been using a great deal more water in Southern California that is being replaced by either natural or artificial means. In truth - we are advised by our responsible engineering authorities that we are now actually using in Southern California approximately 170 million gallons of water each day MORE than is being replaced by either Man or Nature. Temporarily, we are getting this 170 million gallons each day by dipping down into our underground water reserves and taking out of our water savings account - if you will - this enormous quantity of water.

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In every section of Southern California essentially the same water conditions exist. Everywhere we find the water levels dropping rapidly away.

Everywhere, we find the necessity confronting our people of bringing in new water from an outside source as the only possible means of relieving this overdraft - and providing the increasing quantities of water constantly required by new industries and new home seekers.

A careful study of this water problem for many years past has revealed that there is just one available water source whence sufficient water can be obtained to meet the needs of our cities. That source is the Colorado River.

But the Colorado River is situated from 250 to 300 miles to the east of the cities in the Coastal Plain of Southern California. To bring this water across the intervening mountain and desert country will require the construction of a great aqueduct - or water supply system. The Metropolitan Water District now is preparing to build this aqueduct.

Construction of the Metropolitan Aqueduct from the Colorado River will be the greatest enterprise of its kind ever undertaken in the United States. Financially, the aqueduct project is feasible. Its cost will be well within the ability of the District.

It will require from eight to ten years - our engineers tell us - to complete the preliminary work and actual construction job of building the aqueduct. By the end of this eight or ten-year period - every city in the Metropolitan Water District - and no doubt many other cities not now in the District urgently will need water from the Colorado River.

I regard the construction of the Colorado River Aqueduct by the Metropolitan Water District as the most important public task now confronting Southern California. I firmly believe that every populated and developed section of this Coastal Plain shares equally in the need for this water supply line - and will benefit in equal proportion - once the aqueduct has been completed.

Here is an enterprise which holds within itself the Destiny of our Southern California. Here is an enterprise that deserves the active assistance of every man and woman in the Metropolitan Water District.

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2-13-31

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For Mr. Wallace

CLOSING ANNOUNCEMENT

Thank you Mr. Toll - -

During the past fifteen minutes you have heard Mr. Charles H. Toll and Chairman William P. Whitsett of the Metropolitan Water District board of directors speak to you on several important phases of the Metropolitan Aqueduct project from the Colorado River.

Mr. Toll is Senior Vice-President of the Security-First National Bank of Los Angeles and also Treasurer of the Metropolitan Water District.

Next Friday evening at 7:30 this radio station will present another of the series of news interviews known as "Fifteen Minutes with the Metropolitan Water District."

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Ladies and gentlemen -- we now present Fifteen Minutes with the Metropolitan Water District of Southern California.

The program to follow is another of a series of Friday evening news-interviews with Chairman William P. Whitsett of the Metropolitan Water District board of directors.

The Metropolitan Water District -- as you know -- is a governmental organization which is -- in effect - a federation of Southern California cities that have joined forces for the purpose of developing additional water to meet their growing requirements. This urgently needed water is available in the Colorado River -- and the big task now confronting the Metropolitan Water District is that of building and operating the great Metropolitan Aqueduct by which this water will be transported from the river to the cities in the District.

Eleven cities were in the original group that established the Metropolitan Water District. The eleven Cities are Colton and San Bernardino, Anaheim and Santa Ana, San Marino, Pasadena, Glendale, Burbank, Beverly Hills, Santa Monica and Los Angeles.

About three weeks ago the citizens of the city of Fullerton voted by the overwhelming ratio of 14 to 1 to become a part of the Metropolitan Water District. Thus Fullerton becomes the twelfth city in the District. Several other cities also have secured permission from the Metropolitan Water District to submit to their voters the proposition of joining the District.

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On next Tuesday -- February 17th -- the people of Long Beach are to vote on the entrance of that city into the District. On February 21st the people of Torrance are to vote on the proposition of entering the District. Other cities that soon will pass on this same proposal are - Riverside, Compton and Ontario.

Because of the overshadowing importance of this Colorado River Aqueduct project -- Chairman William P. Whitsett of the Metropolitan Water District has been asked to come up here and give us the facts.

This evening Mr. Whitsett has brought -- as his special guest -- Mr. Charles H. Toll, Senior Vice-President of the Security-First National Bank of Los Angeles. Mr. Toll - also - is Treasurer of the Metropolitan Water District.

We desire now to present Mr. Whitsett, Chairman of the board of directors of the Metropolitan Water District. Mr. Whitsett, in turn -- will present Mr. Toll -- who also will speak to us briefly.

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Mr. Whitsett --

Mr. W. P. Whitsett Radio Talk, Friday, February 13, 1931 7:30 P.M.

Thank You Mr. Wallace - -

Out here in Southern California where Man is building a great Empire on the edge of the Desert - we must devote a good portion of our thought and our energy to the task of providing and maintaining adequate water supplies.

If we could have - throughout the year - a frequent recurrance of the rain storms that have been visiting us during these last few days - we doubtless would have no such water problem to command our attention. But - if we should have such frequent rains - then - of course - we would have to go without our golden sunshine. That would not be a good trade. Because - we have it within our power to reach out and bring in the water we need - but we could never duplicate the beauty, the comfort and the life-giving qualities of our glorious sunshine.

I say it is within our power to reach out and bring to our cities and other populated areas the water we so urgently need to maintain the high state of development we - thus far - have wrought in Southern California - and to enable us to continue to grow and to prosper in the future. It is to this very task - in fact - that the Metropolitan Water District is dedicated - it is to the successful and economical accomplishment of this task that the District is now bending every fiber of its energy and its ability.

It is a big job and a vitally important one - this task of bringing in from the Colorado River a large supply of water for the benefit of the cities in the Metropolitan Water District. Since there is no problem in Southern California more urgent - or more all-important than this water problem - it has commanded the attention and the active co-operation of the most capable and distinguished citizens in this region.

Mr. John R. Richards Radio Talk K N X Friday, February 20, 1931. 7:30 PM

Thank you Mr. Whitsett.

Southern California is today face to face with the biggest -- and the most vitally important job -- in the history of the West. And it is our job. We cannot shift the responsibility -- or the burden of cost. The job to which I refer -- of course -- is the financing and the building of the great Metropolitan Aqueduct from the Colorado River.

For more than ten years the citizens of the Southern California have been laboring here at home - and in our National Capitol, to bring about the regulation of the Colorado River flood waters - and the conservation of these waters for the beneficial use of the States and communities of the Southwest. All of you out there in radioland are familiar with this long struggle -- all of you know how the fight finally was won. You know that Congress adopted the Boulder Dam project Bill in December of 1928. You know that this bill was signed almost immediately upon its passage by President Coolidge.

Then came the actual preliminary work on the project itself. You know -- of course -- that Congress more than a year ago authorized the first actual appropriation of money to start the Boulder Dam project -- and all of us were overjoyed the other day to learn that Congress had passed a second appropriation measure. A measure that will enable the Department of the Interior to press forward the actual work of building the gigantic dam -- and thus giving the people of Arizona and California the flood protection and water conservation -- we so urgently need.

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Now -- I find that there is a great deal of confusion in the public mind as to the relation or connection between this Boulder Dam project - and the Metropolitan Aqueduct project.

First of all -- we must keep in mind the fact that the Boulder Dam project and our own Metropolitan Aqueduct project are two separate and entirely different projects. Boulder Dam is being financed and built by the United States Givernment. True -- every dollar invested by the Government is to be repaid to the Federal Treasury by the purchasers of hydro-electric power generated at Boulder Dam. But the fact remains that the Boulder Dam project is -- in all respects - a strictly Federal Government project.

Boulder Dam will eliminate the flood menace of the Colorado River -- Boulder Dam will regulate the flow of the River -- and will hold in storage for beneficial use -- the vast quantities of flood water now going to waste in the Gulf of California.

But Boulder Dam is just about 300 miles from most of the cities of Southern California in urgent need of Colorado River water. Therefore -- we must not fall into the error of thinking that the building of Boulder Dam -- or any other dam on the Colorado River -- will - in itself - deliver to us the water we need.

The task of bringing Colorado River water from the river to our cities is <u>our</u> task -- the Federal Government is not going to do this for us. The cities needing this water -- and wanting this water must do their share in financing the works necessary to bring in the water.

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That was why a group of alert, growing and prosperous cities in Southern California organized the Metropolitan Water District of Southern California -- to build and operate the works required to bring in Colorado River water.

There is just one way in which we can ever hope to avail ourselves of Colorado River water. -- We must build a gigantic aqueduct -- or water supply line -- that will divert from the River the water we need -- and then carry this water across the mountains and the desert country standing between the river and the cities of the Coastal Plain of Southern California. This aqueduct will be -- in effect - a man-made river -- if you will. In the more level stretches of country the aqueduct will take the form of a great concrete-lined and concrete-covered ditch. Where mountains intervene - the aqueduct will pass under or through these obstacles in tunnels -- tunnels that will be large enough to serve as a passageway for the largest locomotive in use on any transcontinental railway line. Where canyons or other depressions must be crossed - the aqueduct will take the form of enormous steel or concrete siphons.

Construction of this great aqueduct system will be the biggest engineering enterprise ever launched in the United States. As an engineering job, the Metropolitan Aqueduct will be far larger than Boulder Dam.

As I said a moment ago -- the building of this aqueduct is an undertaking that is being handled and directed entirely by the Metropolitan Water District.

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The District -- is itself -- a federation of Southern California cities that have joined forces and resources to share in the expense of building the great water supply system -- and also to share in the golden benefits that will flow from this Metropolitan Aqueduct, benefits in the form of assured and abundant water supplies.

I think it will -- therefore - be helpful if we will keep in mind a few basic facts relative to this Colorado River water subject.

First. All Southern California needs -- and urgently needs -- an additional water supply from the Colorado River.

Second. The only way in which we can bring in this Colorado River water is through the construction and operation of an aqueduct or water supply line from the river to our cities over here on the Coastal Plain.

Third. The only way in which <u>any</u> city can hope to <u>share</u> in the benefits of this aqueduct water is by entering and becoming a part of the Metropolitan Water District.

Fourth. Construction of the Metropolitan Aqueduct will require the investment of a large amount of money. Careful estimates indicate that the aqueduct proper will cost approximately $200,000,000. This expense must be borne by the Metropolitan Water District. Cities in the District will be the ones to reap the benefits flowing from the use of Colorado River water -- consequently these cities must be prepared to foot the bill.

It is perfectly true that this estimated cost of approximately $200,000,000 represents a tremendous amount of money.

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Fourth. Construction of the Metropolitan Aqueduct will require the investment of a large amount of money. Careful estimates indicate that the aqueduct proper will cost approximately $800,000,000. This expense must be borne by the Metropolitan Water District. Cities in the District will be the ones to reap the benefits flowing from the use of Colorado River water -- consequently these cities must be prepared to foot the bill.

It is perfectly true that this estimated cost of approximately $800,000,000 represents a tremendous amount of money.

But when we think of this figure we must keep in mind the fact that there now actually are 2,000,000 persons living in the Metropolitan area that will share in this cost. Based on this actual present-day population -- the expense of paying the interest on such a $200,000,000 investment, coupled with the expense of operating and maintaining the aqueduct system -- will amount to about 2¼ cents per person per day.

But it will require from eight to ten years to invest this money. In the meantime it will be providing employment for many thousands of men -- and in the meantime this Metropolitan area will have greatly increased its population -- and its wealth. Therefore - the cost - when that cost actually begins to fall due - will be even less than this 2¼ cents per day per person - I have just mentioned.

The Metropolitan Water District -- through its responsible officers -- as I said in opening my statement -- is facing the biggest job in the history of the West. It is imperative that every citizen in the District be fully advised as to all of the facts.

We know that - once you have the facts -- you will act wisely - and act in a manner that will best protect your own interests and the interests of your home community and Southern California, as a whole.

Thank you -- and Good Evening.

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Mr. W. P. Whitsett Radio Talk K N X Friday March 13th, 1931 7:30 P.M.

On Wednesday of this week Secretary of the Interior Wilbur signed the contract for the building of Hoover Dam at Boulder Canyon on the Colorado River. Within 24 hours after Dr. Wilbur had signed the contract in Washington, Mr. Frank Crowe, the General Superintendent for the Hoover Dam construction corporation, was on his way to Boulder Canyon to take charge of the work. Today the work actually had been launched. Hoover Dam - the great structure that will forever eliminate the Colorado River flood menace - Hoover Dam - the towering concrete wedge that will hold in storage for beneficial use the billions and billions of gallons of Colorado River water now flowing to waste in the sea - Hoover Dam - that will regulate the Colorado River and store the water needed by our cities here in Southern California - Hoover Dam - that will provide constructive employment for thousands of men - Hoover Dam, now - at last - actually is in the making.

To the people of Southern California - and the entire Southwest- it is a dream come true. For eight long years our people in this region worked and struggled to secure the enactment by Congress of the Boulder Canyon project bill. At last that legislation was passed - and signed by the President. Then came the task of getting the work itself underway. In this we have been fortunate. We have been fortunate in having as our Secretary of the Interior a Western man - a man who understands the water problems of the West. Dr. Ray Lyman Wilbur has pushed forward the project aggressively and wisely - - - until today the building of the dam is going ahead.

To the cities and the residents of the Metropolitan Water District of Southern California the starting of work on Hoover Dam is of direct and vital importance.

Construction of Hoover Dam by our Federal Government gives a tremendous impetus to our Metropolitan Aqueduct project. The Dam will regulate the flow of the Colorado River. It will hold in storage the flood waters now being wasted - and a portion of this water, thus saved, will be made available for diversion into our aqueduct.

The task of building the Aqueduct itself - of course - is our task. The Government is building the Dam. We must build our own Aqueduct - - -

- - This evening I am most happy to have with me up here a member of the Board of Directors of the Metropolitan Water District who has contributed a very great deal to the task of launching our great Aqueduct project. This man is Mayor Harvey E. Bruce, Director for Burbank on the Metropolitan Water District Board.

Permit me now to present - -

Mayor Bruce of Burbank - - -

- - - - -

3-13-31

Orra Monnette Radio Talk K N X Friday Evening 7:30 May 29, 1931.

In Southern California -- our people with their clear vision of the past and of the future -- and with tools of modern science and machinery -- are setting underway a great project that will give - at last - to Mankind its victory over our age-old enemy -- the Desert.

In Southern California -- we are now building a group of great and growing cities -- a gigantic Empire - if you will - and we are building all this upon the edge of the Desert. This in itself is nothing new. Because ever since Man started to raise large cities upon the face of this Earth - he has chosen the Desert country as the most desirable of all locations.

If we will look back through the ages - we will see how Man -- time after time - has set about to build magnificent Empires and City states in the same sort of semi-arid -- desert country of sunshine as we have here in Southern California. We will see how - at first - these early men went about the task of bringing in additional water from outside sources with energy and with skill. And -- then - in almost every instance - we see how -- after awhile - Man became careless - how he came to the foolish belief that he had provided himself with all the water needed to meet his needs. And each time - when Man allowed himself to drift into this trap of false safety - he has paid the terrible price of utter obliteration.

Southern California is a land of sunshine. Occasionally - to be sure - we are visited by rain storms - such as those we have just been experiencing - but these rains come to us infrequently and the total quantity of water produced by such storms falls far short of supplying our actual day by day water requirements.

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Southern California is a land of sunshine. Occasionally - to be sure - we are visited by rain storms - such as those we have just been experiencing - but these rains come to us infrequently and the total quantity of water produced by such storms falls far short of supplying our actual day by day water requirements.

In other words - we are now - and for some time past - have been using a great deal more water in Southern California than is being replaced by either natural or artificial means. In truth - we are advised by our responsible engineering authorities that we are now actually using in Southern California approximately 170 million gallons of water each day MORE than is being replaced by either Man or Nature. Temporarily, we are getting this 170 million gallons each day by dipping down into our underground water reserves and taking out of our water savings account - if you will - this enormous quantity of water.

It has taken Nature hundreds of thousands of years slowly to accumulate the water we have found in the underground basins of Southern California. During the many thousands of years that passed before Man came to this region, and began to develop this area - this water had been gradually trickling into these underground channels. During the past twenty or twenty-five years - however - we have been pumping out of these underground basins the water which it required many thousands of years for Nature to accumulate.

Even a moment's consideration of this condition reveals that we are bound - very soon - to strike the bottom of the well unless we halt our present overdraft against our reserve water supplies.

Evidence of this heavy overdraft of water is all about us. A quarter of a century ago - there was an area of about 315 square miles in Southern California where artesian wells were flowing freely. Today artesian wells practically have disappeared in Southern California - and <u>all</u> the wells are dropping year by year. Everywhere, we find the necessity confronting our people of bringing in new water from an outside source as the only possible means of relieving this overdraft - and providing the increasing quantities of water constantly required by

In other words - we are now - and for some time past - have been using a great deal more water in Southern California than is being replaced by either natural or artificial means. In truth - we are advised by our responsible engineering authorities that we are now actually using in Southern California approximately 1?0 million gallons of water each day MORE than is being replaced by either Man or Nature. Temporarily, we are getting this 1?0 million gallons each day by dipping down into our underground water reserves and taking out of our water savings account - if you will - this enormous quantity of water.

It has taken Nature hundreds of thousands of years slowly to accumulate the water we have found in the underground basins of Southern California. During the many thousands of years that passed before Man came to this region, and began to develop this area - this water had been gradually trickling into these underground channels. During the past twenty or twenty-five years - however - we have been pumping out of these underground basins the water which it required many thousands of years for Nature to accumulate.

Even a moment's consideration of this condition reveals that we are bound - very soon - to strike the bottom of the well unless we halt our present overdraft against our reserve water supplies.

Evidence of this heavy overdraft of water is all about us. A quarter of a century ago - there was an area of about 3?5 square miles in Southern California where artesian wells were flowing freely. Today artesian wells practically have disappeared in Southern California - and all the wells are dropping year by year. Everywhere, we find the necessity confronting our people of bringing in new water from an outside source as the only possible means of relieving this overdraft - and providing the increasing quantities of water constantly required by

by new industries and new home seekers.

A careful study of this water problem for many years past has revealed that there is just one available water source whence sufficient water can be obtained to meet the needs of our cities. That source is the Colorado River.

Over in Boulder Canyon on the Colorado River the United States Government is today pushing forward actual construction work on the great Hoover Dam. Hoover Dam will be a gigantic wedge of concrete standing between the towering granite walls of the Canyon. The dam will stand 720 feet high above bed rock foundations - it will be the largest man-made dam structure of its kind ever erected by hand of Man. Hoover Dam will regulate the flow of the Colorado River; it will hold in storage the nine billion gallons of water that are now wasted each day into the sea by this turbulent river. Behind Hoover Dam there will be created a lake 110 miles long and 30 miles wide. It will rank as one of the very largest fresh water lakes in the United States.

Imagine this great body of water situated out in the midst of the Great American Desert. It will be a scenic attraction - second to none in the West. In this great lake behind Hoover Dam will be held in storage the water so urgently needed by the cities in the Metropolitan Water District of Southern California.

But the Colorado River is situated from 250 to 300 miles to the east of the cities in the Coastal Plain of Southern California. To bring this water across the intervening mountain and desert country will require the construction of a great Aqueduct - or water supply system. The Metropolitan Water District now is preparing to build this Aqueduct.

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Construction of the Metropolitan Aqueduct from the Colorado River will be the greatest enterprise of its kind ever undertaken in the United States. Financially, the Aqueduct project is feasible. Its cost will be well within the ability of the District.

It will require from eight to ten years - our engineers tell us - to complete the preliminary work and actual construction job of building the aqueduct. By the end of this eight or ten-year period - every city in the Metropolitan Water District - and no doubt many other cities not now in the District urgently will need water from the Colorado River.

I regard the construction of the Colorado River Aqueduct by the Metropolitan Water District as the most important public task now confronting Southern California. I firmly believe that every populated and developed section of this Coastal Plain shares equally in the need for this water supply line - and will benefit in equal proportion - once the aqueduct has been completed.

Here is an enterprise which holds within itself the Destiny of our Southern California. Here is an enterprise that deserves the active assistance of every man and woman in the Metropolitan Water District.

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W. P. Whitsett Radio Talk K N X Friday Evening 7:30 May 29, 1931.

Thank You Mr. Wallace -

In considering this all-important task of maintaining adequate supplies of good water for domestic, industrial and agricultural use in Southern California -- I believe there is almost unanimous agreement on two or three fundamental points.

First. Practically every citizen of this beautiful region has come to the clear realization that we are living in a semi-arid desert country - and that we stand in urgent need of a large additional water supply.

Second. All who have stopped to think the matter over have come to realize that the only source whence we will be able to secure sufficient water to meet our needs is the Colorado River.

Third. We all know that the Colorado River is from 250 to 300 miles distant from the cities of Southern California in need of its life-giving waters. Consequently, it will be necessary for us to build and to operate a great Aqueduct - or water supply system - to bring to our homes and our factories the Colorado River water we must secure - if we are to live here and to grow.

Since the organization of the Metropolitan Water District more than two and one-half years ago - work on the great Metropolitan Aqueduct project has been carried forward without interruption. This work has revolved around the engineering studies made to determine the best and the most economical Aqueduct route, and second, the completion of all the legal details incident to such a large undertaking.

Several months ago, the most distinguished group of engineers available in America passed upon the great mass of preliminary engineering studies and recommended the best and most economical route.

Only a few days ago, the United States Supreme Court dismissed the lawsuit filed by the State of Arizona against the Boulder Dam development on the Colorado River.

It now appears that the time has arrived for constructive action by the Metropolitan Water District. It appears that the time has arrived for this District to launch its part of the big Colorado River water development task - time we set about the actual building of the Metropolitan Aqueduct.

On Thursday Evening of next week -- June fourth - there is to be a dinner meeting at the Hotel Alexandria in Los Angeles. This meeting has been called by the Board of Directors of the Metropolitan Water District - and is to be attended by the Mayors, other responsible city officials and heads of civic organizations representative of the fourteen cities in the District.

It is expected that every city will be represented by a dozen or more men and women. At this dinner meeting - the District will make plain the work thus far accomplished in pushing forward the Metropolitan Aqueduct. Plans for the actual construction of the Aqueduct are to be discussed and considered.

This is the largest and -- by far - the most vitally important project ever placed in the hands of Southern California. The wholehearted co-operation of every city -- every financial, business and labor organization will be needed.

This evening it is my very great pleasure to have as the special guest speaker on this Metropolitan Water District period - one of the outstanding financial and civic leaders of the Southwest - a man who has found time - in the midst of his extensive banking

activities - to give serious study to the water problems of Southern California and the entire Southwest. This man is Mr. Orra E. Monnette, Vice Chairman of the Board of Directors of the Bank of America National Trust and Savings Association.

Permit me, at this time, to present Mr. Monnette -

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STATEMENT by W. P. WHITSETT
Before the
CITIZENS' COLORADO RIVER WATER COMMITTEE MEETING
at the
Biltmore Hotel - August 28, 1931

You have witnessed here today the firing of the first gun in a campaign leading up to a bond election on September 29, which will make possible the bringing of water from the Colorado River to the thirsty cities here on the Coastal Plain of Southern California.

There are present here today, men and women who gathered on a similar occasion twenty-four years ago to launch the campaign for the building of the Owens River Aqueduct. Without the water brought in by that aqueduct, hundreds of thousands of us would not be enjoying the privileges and opportunities of living in this lovely land of Southern California.

This project has been shown to be economically sound. The work has been conducted under the best legal and engineering advice anywhere available. The engineering plans have been rechecked by a board composed of three of the most outstanding engineers in America. It is now up to you men and women to carry this project to the voters of Southern California. They are looking to you people of thought and action for information and leadership.

Not only are the eyes of the people of Southern California turned on you, but the eyes of the Nation and the whole world are

watching Southern California. There never has existed an opportunity to go forward and build a great empire as now exists here. Every element necessary in this great development is here in Southern California, with the exception of an adequate water supply.

It is up to you men and women to make this bond election on September 29 as great a success as was the election in 1907 when the Los Angeles Aqueduct was begun, in order that people may come to Southern California and realize the opportunities for health and comfort in this most wonderful and delightful of all places to live.

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CITIZENS' COLORADO RIVER WATER COMMITTEE MEETING
at the
Biltmore Hotel - August 28, 1931

You have witnessed the firing of the first gun for the bond election to make possible the building of the Colorado River Aqueduct to bring water from that mighty river to the thirsty cities of Southern California.

The legal and engineering phases of this great undertaking have been gone over and studied by the most capable men ~~in America~~ available. The plans have been rechecked by the most outstanding engineers in America. This project is economically sound and we must have this water.

You men and women gathered on a similar occasion twenty-five years ago to launch the campaign for the building of the Owens Valley Aqueduct. Without that water hundreds of thousands of us would not be enjoying the privileges and opportunities of this lovely land of Southern California today.

You people are the leaders of thought and action. You are the leaders of the various groups which comprise the voters of this community. The eyes of the people are faced toward you today. Not only are these people watching you, but the eyes of the Nation, and in fact the world, are looking to see what Southern California does on September 29.

You men and women put over the Los Angeles Aqueduct twenty-five years ago. Never has Southern California been

faced with such a great opportunity to go ahead, nor with such dire possibilities of disaster if we fail.

The Directors of the District have done their duty, made their decision. Now it is up to you to put this job over in the way for which Southern California is famous.

Brother Jonathan
Bond

W. P. Whitsett

Remarks for Biltmore Luncheon

August 28th, 1931.

Ten years ago the people of Southern California first began to lay definite concrete plans for the development and use of the water resources of the Colorado River. Ten years ago the United States Government - acting through the ablest and most expert engineering authorities available - began its scientific study of the Colorado River flood control and water conservation problem.

Seven years ago the people of Los Angeles, acting through their accredited engineers and officials, first began the task of studying the Colorado River Aqueduct project. Almost three years ago the Metropolitan Water District of Southern California was officially established. The District secured the best engineering ability that it could find within the United States.

We are now face to face with the big job of actually authorizing the bond issue necessary to build the Aqueduct. And this is your job. The Metropolitan Water District, through its responsible representatives, stands ready to serve you in every way within its power. But - in the last analysis the task of successfully carrying the Aqueduct bond issue is the task of the people. It is your job. Only by your whole-hearted support of this project can it be made possible.

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PROGRAM

Citizens' Colorado River Water Committee Luncheon Meeting

Friday - August 28, 1931.

1 P. M. to 1:30 P. M.

1. Band Music and opening remarks of Mr. Joseph Scott including introduction of Mrs. Shelley H. Tolhurst — 4 minutes

   Mrs. Tolhurst, prominent in civic and women's club activities. Well known as a staunch and uncompromising supporter of the Cities water development program. A member of the Los Angeles Citizens Colorado River Water Committee.

2. Mrs. Shelley H. Tolhurst — 2 minutes

3. Introduction of Dr. Harold H. Griffis - Mr. Scott — 1 minute

   Dr. Harold H. Griffis is Pastor of the Wilshire Boulevard Christian Church and is President of the Los Angeles Ministerial Association; he is a leading figure in civic, religious and welfare work.

4. Dr. H. H. Griffis — 2 minutes

5. Introduction of Mr. D. W. Pontius - Mr. Scott — 1 minute

   Mr. Pontius is President of the Pacific Electric Railway Company and is Controller for the Metropolitan Water District of Southern California. Mr. Pontius, together with Mr. Chas. H. Toll, of the Security First National Bank, who is serving as Treasurer, and all of the members of the Board of Directors, is serving in this important office without salary.

6. Mr. D. W. Pontius — 2 minutes

7. Introduction of Mr. Thaddeus Merriman - Mr. Scott — 1 minute

   Mr. Merriman is Chief Engineer of the New York City Board of Water Supply. Seven million people in New York depend upon Mr. Merriman for their daily water supply. He is recognized as one of the foremost water engineers of the world. He is Chairman of the Engineering Board of Review for the Metropolitan Water District and in that capacity is now in Southern California conferring with Mr. Frank E. Weymouth, chief engineer of the Metropolitan Water District.

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8. Mr. Thaddeus Merriman — 4 minutes

9. Introduction of Bishop John J. Cantwell - Mr. Scott — 1 minute

   Bishop Cantwell will be introduced as Mr. Scott desires. Bishop John J. Cantwell is Bishop of the Diocese of Los Angeles and San Diego.

10. Bishop John J. Cantwell — 2 minutes

11 Introduction of Mr. W. P. Whitsett - Mr. Scott — 1 minute

   Mr. Whitsett is Chairman of the Board of Directors of the Metropolitan Water District of Southern California. He is serving on this Board with such other distinguished citizens of Southern California as Mr. John G. Bullock - Mr. Isidore Eisner - Mr. Wm. L. Honnold - Mr. John R. Richards - Col. S. H. Finley of Santa Ana, Secretary of the Board, and Professor Franklin Thomas, vice-chairman of the Board.

12. Mr. W. P. Whitsett — 2 minutes

13. Music and closing remarks of Mr. Scott — 4 minutes

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12. Mr. W. P. Whitsett — 3 minutes

13. Music and closing remarks of Mr. Scott — 4 minutes

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S T A T E M E N T
by
W. P. WHITSETT
Chairman of the Board of Directors
of
The Metropolitan Water District of Southern California

November 28th, 1931

There can be no permanent relief from the strain and suffering of recurring depressions until our people seek the soil. For the past hundred years we have been getting further and further from the source of our food. Industry is building greater and more crowded cities whose millions must keep the wage-wheels turning or starve. Their very existence depends on the loaded food trucks clattering into the city all night long from the farms beyond.

That food, needed every day by every worker, is grown by some one else and must be paid for out of never certain wages. Until our workers are able to draw from the soil at least the minimum food necessary to sustain their bodies in health, in work and out, there can be no security and there must be charity.

Thomas Jefferson saw this all over a hundred years ago. At the time our Constitution was being drafted he laid down the principle that this government of the people and by the people can only succeed and live as long as the great majority of the people draw their freedom and independence from the soil.

For some years I have given the problem my best thought. Both in America and Europe, I have studied the possibilities and workings of a plan whereby industry would draw its labor from a sturdy citizenry whose sustenance and health is taken directly from the soil. My observations abroad show that those nations whose workers are most universally joined to productive land are the happiest and freest from consequences of a world depression.

No place in the world is so ideally adapted for sustaining a rural-living industrial system as Southern California. Here an acre of good land with water will supply the food requirements of a family clear through the calendar. One man with a few hours of intelligent labor morning and night, can keep his acre trim and his larder full. During the day when there is work, he is contented at machine or counter. When dull times or old age come along, he falls back to his comfortable home without regret, his savings giving him whatever necessities of life the land will not provide.

Industries will come to Southern California in ever-increasing numbers as the world center shifts to the Pacific. They will, for natural and economic reasons, concentrate at certain points. The area around will be subdivided into productive garden acres, each with its modest and comfortable

home. From these acres to the factory will come daily the workers traveling by auto, in groups, or over the rapid transit systems. During the morning and evening hours, and on the week-end, the worker will be healthfully engaged among his vegetables, trees, his vines and coops. As the working day is shortened, and it inevitably must be, more time will be available for his intensive gardening.

This plan does not propose to make every man a farmer. Nor does it intend to create an independence in luxury. For the ambitious man, it represents food, health, a home, security, and independence, whether the factory whistle blows or not, both in youth and in age. By joining our thousands of idle or misused acres with our willing thousands of jobless now pounding the cold pavements, a new era of prosperity can be started in this nation yielding through the years men and women of the type and spirit for which America is known.

REMARKS BY W. P. WHITSETT

DOWNTOWN BUSINESSMEN'S ASSOCIATION

TUESDAY, SEPTEMBER 27, 1932

Members of the Downtown Businessmen's Association:

A city is no better than its water supply. One day over a hundred years ago, Napoleon returned to Paris after one of his many campaigns. He wanted to do something for the City of Paris. He wanted to make it a bigger and a finer city than it was. An administrator was called in and he asked him, "How can I make Paris a city of more than two million people?" The shrewd and capable administrator immediately replied, "Give the city an adequate water supply."

To Los Angeles and Southern California the necessity for an adequate water supply is greater than even was that of Paris of a hundred years ago. Ours is a desert environment. There are no flowing streams, our rainfall comes in concentrated periods, the total is little and must be made to serve through the long dry season.

Of all the larger cities in the world, I can not think of one that is not situated on a living stream or a large body of water. I can not recall that there is in the United States a city comparable with the size of Los Angeles but what has twice or more times the rainfall to feed its water supply. These are facts that it is well for us to remind ourselves of from time to time.

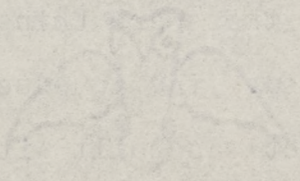
The charm of our weather is at once our greatest benefactor and our worst enemy. Los Angeles startled the world when she built the Owens Valley Aqueduct. It was a project which in size and magnitude defied the imagination of those unaccustomed to the proportions of the desert in its calculations. If ever a city made a better investment than was that project, I would like to know about it. For twenty-five years our growth has been around the outlet of the steel and concrete tube leading up to the High Sierras. Without that water supply, you businessmen would probably still be keeping shop on North Main Street instead of the gigantic and monumental structures you have built. A city of three hundred or possibly four hundred thousand, with its limited powers, would have been the extent of our growth today. We are no greater than our water supply.

The water supply from which we have been drawing is gone. It has all been put to use. We are again preparing to startle the world in the building of the Colorado River aqueduct upon which our growth will continue. Not only will it provide for growth, but will assure that what has already been wrenched from the desert will not again be taken away.

Our margin of water supply is too narrow. The dry seasons have eaten up the wet until the immediate future holds the threat of anxious looking into pipes and wells after they have ceased to flow.

However, these are things of the past. Our problems are now being solved. The aqueduct project is under way. As the Los Angeles aqueduct was built with an efficiency and thoroughness

SUCCESS BOND



that has been our renown, so will the Metropolitan Water District aqueduct be built. At least that is the sincere conviction of those now constituting its Board of Directors. There is not on that Board a man who has a desire other than to see the job done the best and the cheapest way possible. To us who are giving our time to this work, there will be no reward but the satisfaction of having done a big job well. The dollars that we succeeded in saving Southern California will be an index of our success.

We have proceeded cautiously. Seven years have been devoted to the work by the best men that could be obtained. Twice a Board of Review consisting of three nationally known engineers passed upon the early studies. Later a Consulting Board of five men passed upon the project. Their investigations were complete and exhaustive. Recent proposals that this and that route had not been properly investigated are not well founded. In practically every case the plans proposed were found to have been investigated as to their particular features or their general economics and technical advantages and disadvantages.

Recently the Directors of the District had the benefit of the most searching investigations of an entirely impartial nature than I believe any other similar engineering project ever received. Because of the temporary condition in the bond market the District made an application to the Reconstruction Finance Corporation for a loan under the provisions of the relief legislation relating to self-liquidating projects. Its application was the first to be acted upon.

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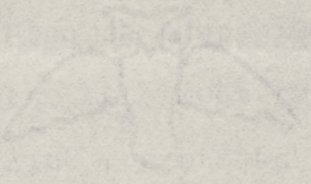
It was to the experts of the Reconstruction Finance Corporation not only its first case, but one of the biggest which

they will be called upon to handle. The Advisory Board of Engineers selected by the Reconstruction Finance Corporation is composed of some of the most outstanding men in the engineering profession. They satisfied themselves and are known to have submitted a report approving the project in all of its technical aspects. In addition there were made the most exhaustive legal, financial, and economic studies that I have ever known under such circumstances. Every one was favorable and the loan was granted.

If we stop a moment to realize what this means to Southern California, it should make us very proud indeed. It means that these experts are willing to say to the Government, "Southern California is economically sound, and its credit is good." To the people throughout this nation struggling to keep up side down pyramids standing, that report must be a sound like solid gold on the showcase top.

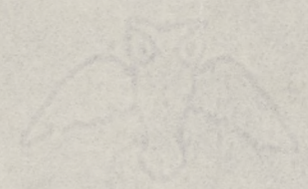
People are looking this way. There is no mistake about that. I have kept myself informed of the way Eastern people feel about Southern California. Their eyes are now turned this way more than ever before. In a national disturbance, in fact in an international disturbance of an established order such as we are just passing through, there is a general shaking up and breaking loose of people from the circumstances that bound them. With the old associations eliminated, people are freer to move than they have been for many years. In building themselves into new social patterns they are not going to hesitate to follow the best opportunities to their source. That is Southern California.

SUCCESS BOND



That, also, is an added reason why the Metropolitan aqueduct must be built as soon as possible. With the restoration of our economic equilibrium, there is going to be a movement into Southern California even greater than those great migrations which we have experienced in the past. Without more water than we have, we can not sustain our present growth. With the new aqueduct finished, there will flow in on those waters, population, and industrial and commercial development beyond our most optimistic dreams.

SUCCESS BOND



M_E_M_O_R_A_N_D_U_M
by
W. P. WHITSETT

November 9, 1932

Yesterday our efforts to get started work on the Metropolitan Water District Aqueduct received a great impetus from the favorable decision of the Supreme Court of the District of Columbia. Regardless of what further action may be instituted, the Court has made it clear that the Reconstruction Finance Corporation can legally make a loan to the District. Within a few weeks steps to obtain the money will be completed.

In the meantime, preparations have been completed so that the moment the money is obtained work will be started. Bids for the construction of the Banning office building were opened last Monday, and the decision of the Board of Directors will probably be handed down tomorrow. On the tenth, bids will be received on the construction of the transmission lines to carry the construction power load, ~~and opened~~. A week later, on the seventeenth, bids for the construction of the substations in connection with the power lines, will be received.

The biggest job on the project, the San Jacinto Tunnel, is now being figured on by the contractors, who will submit their bids for opening on November 29.

I have every confidence that the necessary financial arrangements can be made, and that all difficulties will be cleared out of the way so that the units mentioned can be started within

the usual time after the bids are received. In terms of employment activity, this means that workmen will probably be on the job and the project under way before the first of the year.

DEAN McNITT: So that we may understand just what this interview deals with, Mr. Whitsett, let us first ask some fundamental questions. Exactly what is the Metropolitan Water District of Southern California?

MR. WHITSETT: The Metropolitan Water District is a governmental subdivision of the State of California. Included in it are thirteen cities, and their combined areas constitute the area of the Metropolitan Water District.

DEAN McNITT: Apparently, then, the idea that the Metropolitan Water District and the City of Los Angeles are one and the same thing is wrong. What are these thirteen cities you mention?

MR. WHITSETT: I'm glad that you asked that question, Dean McNitt. Contrary to the belief that seems to be held in some quarters, Los Angeles is by no means the only city in the District. There are twelve other municipalities: Anaheim, Beverly Hills, Burbank, Compton, Fullerton, Glendale, Long Beach, Pasadena, San Marino, Santa Ana, Santa Monica, and Torrance.

DEAN McNITT: We all know, of course, that the District was formed for the purpose of building and operating the Colorado River Aqueduct. Does it have any other function?

MR. WHITSETT: Absolutely none. The sole purpose of the District is to bring into Southern California a new and adequate water supply from the Colorado River.

DEAN McNITT: As an attorney, one of the points which interests me especially is the government of the District. Just what sort of governmental machinery has been set up?

MR. WHITSETT: The District is governed by a Board of Directors, the members of which are appointed by the mayors of the municipalities

in the District, with the approval of the city councils. The representation of each city is based on its assessed valuation, but it is provided that no city shall have over fifty per cent of the total number of votes of all the member cities, no matter how large that city may be. That guards against the possibility of any one municipality dominating the District. All the Directors serve without compensation.

DEAN McNITT: You said a few minutes ago, Mr. Whitsett, that the District's only function is to build the Colorado River Aqueduct. Just how did you go about determining that the Aqueduct is necessary?

MR. WHITSETT: Lengthy engineering studies showed us that Southern California is using all of its available annual rainfall, and in addition is drawing 200,000,000 gallons a day from its underground water supplies in order to make up the balance. That could mean only one thing--rapid depletion of our present water reserves. This depletion is shown by the fact that the level of water in our wells is constantly dropping. Each year it has been necessary to deepen the wells in pursuit of the falling water levels in the natural basins beneath the ground.

DEAN McNITT: But aren't there other sources from which we could get sufficient water to meet our needs?

MR. WHITSETT: Unfortunately, there are not. Southern California has too completely outgrown its water supply for that. I have pointed out that our present supply is not large enough to meet even our needs now, without serious overdraft upon our reserves. Future growth, which will inevitably come, will make necessary far greater overdrafts which cannot be allowed to continue without grave consequences. Taking water from wells is really like taking water from a rain barrel. If we take two gallons a day from the barrel more than rainfall puts into it, there

can be only one result. We are going to hit the bottom sooner or later. That's exactly what faces Southern California today. We've been taking more water from our rain barrel than Nature has been replacing, and unless we secure a new supply, we're certain to strike bottom. It has been definitely determined that only from the Colorado River can we obtain a new supply that is large enough to meet this situation.

DEAN McNITT: You mentioned lengthy engineering studies a moment ago, Mr. Whitsett. Just when was the possibility of a Colorado River Aqueduct first considered?

MR. WHITSETT: In 1923. For nine years the most intensive surveys and engineering studies were carried forward to determine, first, our need for the water; and second, the most economical and best way of getting it here. I think it is safe to say, Dean McNitt, that more intensive research was devoted to the Aqueduct than to any other engineering project in the history of the country.

DEAN McNITT: How is the project to be financed?

MR. WHITSETT: On September 29, 1931, citizens of the District voted, by an overwhelming 5-to-1 majority, a $220,000,000 Colorado River Aqueduct bond issue. The Federal Reconstruction Finance Corporation has pledged itself to bid on and buy these Aqueduct bonds up to the sum of $40,000,000 thus making available sufficient funds to finance construction work on the project over the first two years. Monday the Corporation's bid on the first block of bonds was accepted.

DEAN McNITT: I understand that the District's directors also awarded its first large contract last Monday. Is that correct?

MR. WHITSETT: Yes. It was the contract for construction of the

13-mile San Jacinto tunnel. The contract was awarded to the Metropolitan Engineering Corporation which submitted a low bid of $7,331,815.

DEAN McNITT: Does that action indicate that the entire project will be done by contractors?

MR. WHITSETT: Not at all. The Aqueduct has been divided into approximately 30 separate units, of which San Jacinto tunnel is only one. The Board has adopted the policy of determining the method of handling each unit as it is presented in accordance with the construction program. It may decide to do any or all of the remaining units with its own forces, rather than letting contracts for them.

DEAN McNITT: Along that same line, here is another question which I am sure will prove interesting to many. Will the letting of contracts or execution of the work by force account make any difference in the wages to be paid?

MR. WHITSETT: None at all. A minimum wage scale has been set up by the District and must be observed strictly, whether the work is done under contract or by force account. Under the law, any contractor, or sub-contractor, who pays less than the minimum wage will be fined ten dollars for every day that the law is violated in each individual case.

DEAN McNITT: How was this wage scale determined?

MR. WHITSETT: The District wage scale was established after a thorough study had been made of the wages actually paid in Los Angeles, Riverside, Orange and San Bernardino Counties, and is somewhat higher, on the whole, than the average wages being paid by the various types of employers in these four counties.

DEAN McNITT: Approximately how many men will be employed on this huge job?

SUCCESS BOND

MR. WHITSETT: It is estimated that an average of 10,000 men will work on the Aqueduct project over the six year construction period. Many thousands more, of course, will be given employment indirectly in the manufacture of materials and supplies that will be needed for construction.

DEAN McNITT: Before we conclude, Mr. Whitsett, is there any special point you would like to make for the benefit of those who are listening to us?

MR. WHITSETT: Yes, Mr. McNitt, there is. I should like to leave one thought with the citizens of the Metropolitan Water District who have heard our discussion. It is simply this: I want to personally assure every one of them that the members of the Board of Directors of the District keenly feel the great responsibility that has been placed upon them; and are sincerely determined to do this job in the best possible way. We have but two interests in the matter. One of them is to see that the citizens and taxpayers of the District get full value for their money. The other is to see that the rights and interests of the men actually employed on the project are fully protected, and that those doing the work are drawn from the thirteen cities in the District.

I have been very happy to discuss with you our great Aqueduct project, Dean McNitt, and I thank you for the opportunity.

SUCCESS BOND

Remarks by W. P. Whitsett, Chairman of the Board of Directors of The Metropolitan Water District of Southern California, at luncheon at the Biltmore Hotel on occasion of the District's being granted $40,000,000 by the Reconstruction Finance Corporation.

Another milestone in the history of Southern California has been passed. Last week the Administration in Washington, after the most searching investigation, granted The Metropolitan Water District of Southern California a loan of $40,000,000.

In drafting the legislation and in its application to the District's project, the members of both great parties were helpful. Dr. Wilbur and his organization, and the other members of the Administration at all times manifested a sincere understanding and cooperation.

Among our own people I particularly feel I should express our appreciation to the Los Angeles Chamber of Commerce through its President, Mr. Schleicher, to the Los Angeles Realty Board through Mr. McCarthy, its President, and to the Downtown Businessmen's Association through Mr. E. J. Flemming.

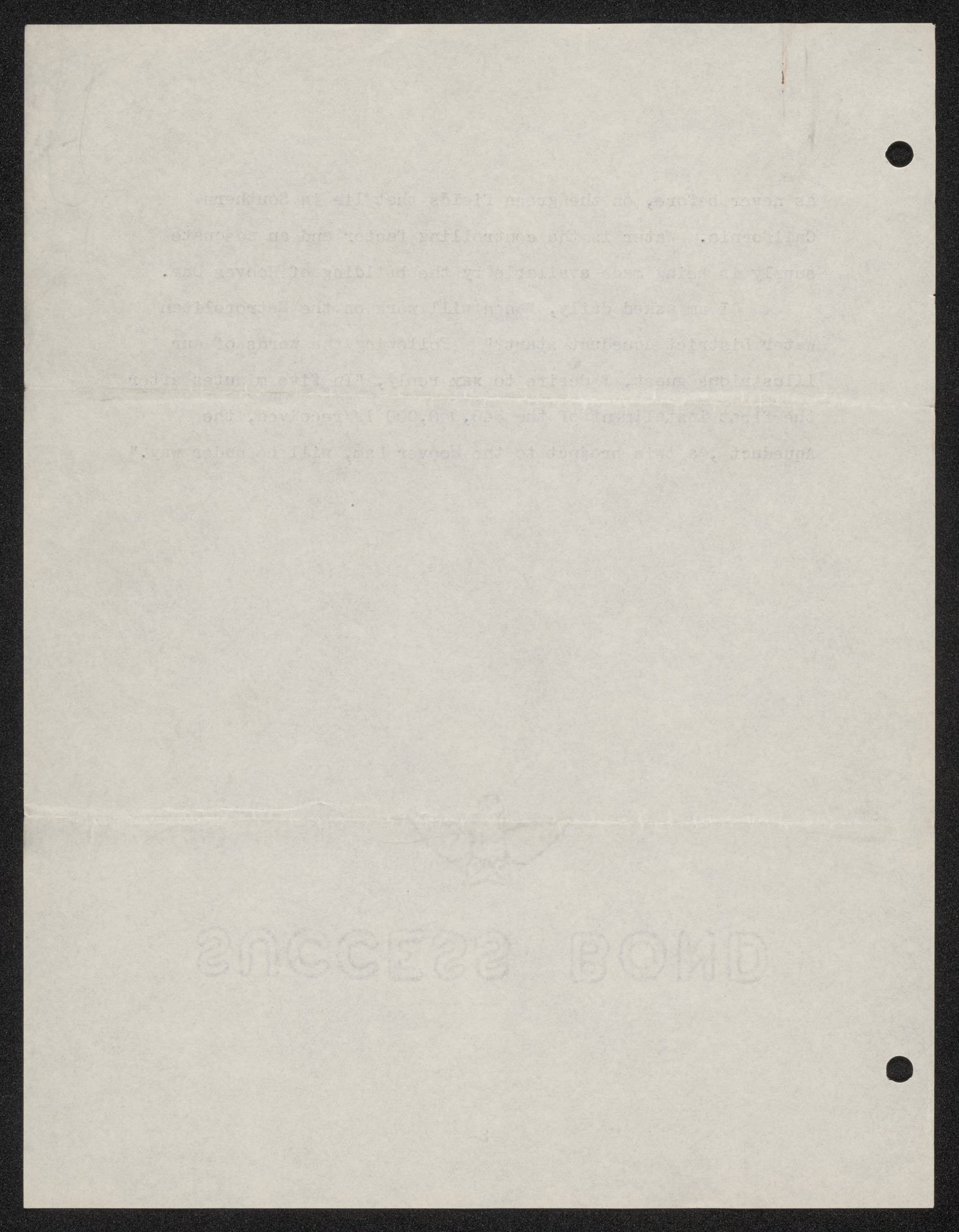
The granting of this loan means assurance that Southern California will have the water it needs. It will mean security against the desert and a foundation on which population, industry, and commerce can safely live. Probably more than these, it will mean employment to thousands of our employable people now out of work. Surely those of us who are at this meeting have much to be thankful for to the National Administration that has made these things possible.

Let me tell a story on our speaker today which illustrates how our Government works. Two years ago, after many years of study, investigation and controversy, hearings were being held before the Appropriations Committee considering the question of advancing funds for the starting of work on Hoover Dam. The opposition then, as now, were advocating delay for further consideration. I was present and we were pleading the necessity for water, employment and power for the Pacific Southwest. The outcome looked discouraging. At that time our distinguished guest here today, the Secretary of the Interior, appeared on the scene and the Chairman of the Appropriations Committee turned to him with this inquiry: "Mr. Secretary, if this appropriation is approved and money granted for this project, how soon can it be started?" "In five minutes," was the emphatic reply of Dr. Ray Lyman Wilbur, and the victory was won.

Southern California, the Pacific Southwest, and the Nation can never repay the debt of gratitude we owe this man of thought and action for making possible the starting of this great project, the building of Hoover Dam. It gave us new hope, courage, and determination to go forward in the building of this empire between the desert and the sea, under the warm blue skies of California, where so many want to live. Great migrations have always followed great crises which have broken up business associations, up-rooting home ties, and driving the people to look about for greener fields in which to start again. The eyes of the world are today riveted,

as never before, on the green fields that lie in Southern California. Water is the controlling factor and an adequate supply is being made available by the building of Hoover Dam.

I am asked daily, "When will work on the Metropolitan Water District Aqueduct start?" Following the words of our illustrious guest, I desire to reply, "In five minutes after the first installment of the $40,000,000 is received, the Aqueduct , a twin project to the Hoover Dam, will be under way."



Remarks by W. P. Whitsett
CONSTRUCTION INDUSTRIES BANQUET
Biltmore Hotel - March 16, 1933

THE CONSTRUCTION OUTLOOK AS VIEWED BY THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

I have been asked to contribute the point of view of The Metropolitan Water District of Southern California to this discussion. Compared with the other points of view which are being presented tonight, my presentation is comparatively simple and specific. The District has a single job to do, and that job is absorbing all the time and energy that can be devoted to it. Those of you who know the Board of Directors of the District, realize that we have only one desire, and that is to complete the undertaking in the best possible way that it can be done at the least possible cost. I do not believe that economy should be carried to the point where an inferior structure would result. But within the limits of safety and good engineering practice, you can be assured that as long as the principles which have been established by the present Board are maintained in effect, that sound, honest results will be obtained.

The work which is being carried on at the present time represents an accumulating and expanding program of activity begun back in 1925. From 1925 until 1931 when the bonds were voted, the work carried on by the District was a matter of surveying, mapping, locating and analyzing routes. The driving force behind the undertaking was the unescapable fact that Southern California must have an additional water supply from beyond local sources and the influence of local climatic conditions.

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The severe economic conditions to which we have been subjected for the past few years, have not altered the facts upon which the

project is predicated in any essential respect. I am convinced from my 25 years of experience with the flow of people into Southern California that as soon as stability has been achieved the influx of population into Southern California will proceed at rates in excess of any we have experienced heretofore. That may seem like unjustified optimism in the face of present conditions, but I don't believe it is.

I have made it a point to keep very close to public sentiment with regard to Southern California in practically every major portion of this nation. The depression has broken up combinations and types and created situations which will release population pressures in this direction which were not operative in the past. However, these points are beside the question as to the influence of the District on the construction outlook. Nevertheless, the fact remains that Southern California is exceedingly fortunate to have a project which is the soundest kind of public investment, going forward under present conditions. If it had been especially planned, which it was not, to start the aqueduct at a time when people need employment the most, when material prices are the lowest, when the work could be constructed most efficiently, it could not have been better planned.

The undertaking is an investment and not a liability as some seem inclined to believe. It is an investment that will be self-liquidating and return every dollar many times over both in terms of security and tangibly in the form of added wealth predicated on continued expansion which is the natural destiny of this area with an adequate water supply available.

Since the bond election, through the snarls of red tape and the usual difficulties which attend a public undertaking of this

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Since the bond election, through the snarls of red tape and the usual difficulties which attend a public undertaking of this

type and magnitude, the construction activities have proceeded.

To the present, there have been let about 35 contracts for materials and equipment. Most of it was in connection with the building of construction power, water, and communication systems. There have also been let in addition, about 16 contract involving construction. The total value of the construction contracts let to date including the materials and supplies, is about $11,700,000. A large percentage of this, of course, is the $7,340,000 involved in the construction of the San Jacinto Tunnels, the contract for which has been let to the Wenzel & Henoch Construction Company. In addition to the construction work started under contract, the District has begun work on a section of the Coachella Tunnels under its own organization. The particular reason which prompted the Board to depart from its policy of first asking for bids, was that it would enable a great many of men to obtain work several months earlier than would otherwise have been the case. The building of a considerable section of the work by force account has many other advantages under the circumstances, with which most of you are familiar. It will have some influence in insuring the District of obtaining truly competitive bids. It will serve as a buffer unit to take care of any flux which might occur in the flow of funds to the District. The fact that work on either side of the section ~~is~~ being constructed by force account will be built by contract, will create a wholesome condition of rivalry and competition and will clearly reveal the respective merits of the two methods as to which the Board of Directors have recently found there exists a great difference of opinion.

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around $6,000,000 and on transmission lines to the river involving about a million more.

The construction program of the District calls for advertisement on tunnel construction to the extent of about $24,000,000 within the new few months. We believe the work is progressing as rapidly and as expeditiously as can be expected. By getting the crews into the field before the heat comes on, the men will be in a condition to carry on normally and without injury to themselves through the summer.

Many of the contracts being let by the District at the present time initiate construction which will continue over the next five or six years. During that period I am convinced that Southern California is going to see a great influx of population and an expansion of industry. The history of Southern California reveals that following periods of economic depression there has always been a rapid expansion. Many of you will recall the circumstances following the panic of 1907.

These results are brought about by a number of clearly understood factors. For instance, in times like the present, social ties which have a tendency to keep people in more less isolated groups, are disrupted. Upon starting over again, the individual looks for new fields where opportunities are brighter and greener. To people in such a frame of mind, the fact that such great projects as the Hoover Dam and the Metropolitan Water District aqueduct are under construction will represent concrete evidence of progress.

Another factor is the decentralization of industry which has been gathering force now for some time. The tendency is for the creation of smaller units with less overhead operating close to their markets. Transportation systems and long distance transmission ~~over~~

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Another factor is the decentralization of industry which has been gathering force now for some time. The tendency is for the creation of smaller units with less overhead operating close to their markets. Transportation systems and long distance transmission over

of power and water no longer make it necessary for an industry to consolidate into certain areas. In the future more industries will be located in rural and semi-rural areas where the workers will have an opportunity to supplement their wage earning activities with the cultivation of home gardens. Decentralization of industry, therefore, will cooperate very closely with the back to the land movement. In no place in the world can this system be operated so effectively as in Southern California where soil and climate with an ample water supply will enable the variety of production to take place throughout the year. Added to the factors named, there is, of course, the awakening of the nations surrounding the Pacific which President Theodore Roosevelt predicted some twenty-five years ago when he said, "The Mediterranean era died with the discovery of America. The Atlantic era is now at the height of its development and must soon exhaust the resources at its command. The Pacific era, destined to be the greatest of all, is just at its dawn."

The conflict between Japan and China will inevitably result in the reawakening of China and the participation of its millions in international trade.

To the factors I have mentioned there undoubtedly can be added many more. I simply want to impress on you the fact that we must be prepared to take care of a greater influx of population than ever before. For them must be provided homes and all the things that go with them. Plants must be built, equipped, and all of the facilities to maintain them in operation must be provided. When the depression is relieved and the expansion definitely under way, our people will be sustained on their own growth. and so Cal will continue to be the Land of

of power and water no longer make it necessary for an industry to consolidate into certain areas. In the future more industries will be located in rural and semi-rural areas where the workers will have an opportunity to supplement their wage earning activities with the cultivation of home gardens. Decentralization of industry, therefore, will cooperate very closely with the back to the land movement. In no place in the world can this system be operated so effectively as in Southern California where soil and climate with an ample water supply will enable the variety of production to take place throughout the year. Added to the factors named, there is, of course, the awakening of the nations surrounding the Pacific which President Theodore Roosevelt predicted some twenty-five years ago when he said, "The Mediterranean era died with the discovery of America. The Atlantic era is now at the height of its development and must soon exhaust the resources at its command. The Pacific era, destined to be the greatest of all, is just at its dawn."

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Whole left of the Nation

Speeches

M_E_M_O_R_A_N_D_U_M

by

W. P. WHITSETT

July 25, 1933

No-one who has conscientiously studied the water problem in Southern California and who has the interest of this territory at heart can deny that a supply of water from an outside source is not absolutely necessary. The Colorado River is the only source capable of meeting that demand.

As to local water supply, it is just a matter of time until it is exhausted. There are at present 130 square miles in area in which the supply is critical; 223 square miles, much of which is in Long Beach area, in which the water level stands at or below sea levwl. Over 41 square miles are already effected by salt water. These depletions have taken place in a period when climatic conditions were not far from normal.

In our history there were two periods of drought which exceeded anything which has occurred since Los Angeles has had in excess of 100,000 people. Since the first of the century Lake Elsinore has maintained its level in spite of increased diversion. Two times in the preceeding century that lake was known to have dried up.

Our present water supply situation is not a question of providing a supply to meet the future, but of obtaining one that will take care of the present. Conditions in Long Beach, with its harbor and ambitions for industrial growth, are particularly critical.

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There have been from time to time rumors that certain elements in Long Beach would like to withdraw from the Metropolitan Water District. In this regard, it must be pointed out that any city withdrawing shall continue taxable for the purpose of paying bonded and other indebtedness outstanding or contracted for until such obligations have been satisfied. The District had outstanding on June 29 contractional indebtedness to the amount of fifty-eight and one-half million dollars. In addition to this, it would be liable for its proportionate part of the contracts entered into with the United States Government under the Boulder Canyon Project Act. Excluding this last item, the share of indebtedness already outstanding which Long Beach must underwrite is approximately four and one-half million dollars. These amounts are increasing very rapidly at the present time. Reference to this situation is not made with any intention of intimidation, but simply by way of calling attention to something which every serious-minded resident of Long Beach must take into account in considering his attitude toward the District.

We are at present in the middle of one of the most acute periods of economic distress and unemployment ~~known~~ the nation has ever known. There are 100,000 families in the County of Los Angeles alone are receiving public aid in some degree. For the relief of unemployment in Southern California the District represents the soundest and best possibility. On this project men will be employed and at the same time create an essential public facility.

The employment on the project will be distributed among the member cities in the proportion of the contribution of each. Long

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Beach at present has 169 men employed on the aqueduct, which represented during the month of June a payroll of over 18 ~~million~~ thousand dollars. During the peak of construction on a normal program this will increase to about 1100 or more. It may be pointed out in this connection that should Long Beach withdraw from the District undoubtedly all those employed on the project would find it necessary to move into one of the other member cities. Also there would move to other cities of the District all those who have reason to desire or expect work on the project. Those close to the situation state that a considerable movement of population is at present taking place from non-member cities to member cities of the District in the expectation of obtaining employment.

From time to time reports have been circulated by individuals or others with regard to the cost of the aqueduct to the cities, contending that it would be excessive. It has always been recognized that during the early years in some instances it might be necessary to meet the cost by taxation. After the construction period is over and the aqueduct goes into operation the engineers show that the revenues from the sale of water will rapidly eliminate all necessity for contributions from any other source. Steps now in process of negotiation by the District make it conceivable that interest during the construction may be eliminated if not entirely, to a large degree.

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Speeches

Mr. Chairman - Members of the Reconstruction Finance Corporation:

The privilege of this audience is deeply appreciated. We believe it is within your power to aid us in the solution of our very grave problems of unemployment and water shortage. We have over 200,000 employable persons in Los Angeles County alone who do not know where their next meal is coming from and as winter approaches these will be added to by tens of thousands from all parts of the United States seeking our milder climate and charities. They come by freight trains, hitch hike, walk, and by fleets of autos furnished with free gasoline from town to town as it is cheaper for the various communities to furnish them gasoline to the next place than to feed them, so the whole nation dumps their unemployed on us during the winter months. Last winter they arrived at the rate of over 1000 per day, thus greatly adding to our already almost unbearable burden of unemployment.

That you may better understand our water problem, permit me to call to your attention the facts that no other city in the world the size of Los Angeles exists today except it be built on a living stream or shore line of a fresh water lake. No other city the size of Los Angeles exists in the United States except where they have more than twice the rainfall that we have, a large part of it coming in the summer months when most needed and during which we have no rainfall at all. Any six months of these perennial summer droughts would dry up any of your rivers of the East or Middlewest. It would almost annihilate property values. It would

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result in great loss of life and devastating epidemics. Los Angeles must be prepared to stand these constantly recurring summer droughts but frequently encounters seasons of almost total aridity from deficient winter rains.

Let me explain that you may better understand how this is possible. Underlying the Central Coastal Plain of Southern California, on which Los Angeles and 60 some other cities are builded, are 29 gravel basins, or underground reservoirs eroded in with coarse gravel. Through the ages the voids filled with fresh water from the glacial period all down through the years. Some of these basins are sealed over with impervious material and fed from mountain streams in rainfall periods. This section used to be known as the artesian belt, and at one time comprised 315 sq. miles. When a well was driven through this impervious material, water spurted from it to many feet above the surface.

This artesian belt has now almost disappeared. Over most of this heretofore artesian belt the wells are now pumping this fossil water from a point that is below the level of the Pacific Ocean.

The corroding infiltration of salt water has now started. This salt infiltration has permeated 170 sq. miles of this precious fresh water reserve which made possible our growth and development.

This creeping paralysis of saline death will poison our life blood of the miracle empire community of the Southwest.

The financial structure, of Southern California, is resting upon a receding water table, most of it growing more saline each day. We faced this problem once before and Los Angeles boldly and unaided

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This water we can now divert from the menacing flood flows which are conserved by the Hoover Dam. This, our citizens have mandated us to do lest we perish as the desert cities have perished in the past, from the lack of such action as we now attempt.

Guided by the history of Babylon, Ninevah and Tyre, Southern California promises a forward march - straight ahead!

Had we known nine years ago when we started to survey and plan to bring Colorado River water to Southern California all we know today, we could not have planned, or timed, starting the construction of this Colorado River aqueduct to better fit the present unemployment situation, our water needs, or the economic trough of construction material costs.

Our engineering work has been most thorough and complete, as you will see by the prospectus presented. The building of this great project is in the hands of our most conservative and successful business men. These men give unsparingly of their time without compensation. Some of these same men were leaders in the building of the Owens Aqueduct from the High Sierras which I have referred to.

The unusual character of the administration of that Owens project is strikingly emphasized in the fact that the citizens of Los Angeles in the hour of popular clamor against all indebtedness,

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authorized this work in a 5 to 1 vote; and, in addition, 12 neighboring cities also joined us, approving the earlier records made.

The leaders in the development of Southern California have accepted the challenge of the desert on all occasions.

When drought, flood, wind, and fire - those Four Horsemen of the Desert - ride, as they have overridden every other civilization that was builded in the sunshine of the desert, then these men, present here, get into the saddle and abolish political manipulators, because it is a real ride, against economic destruction.

What does it mean to the Nation to start this great project now? It will steady our values by staying our dropping water table, by guaranteeing our continued growth and development. The growth of Southern California in wealth and population has doubled every ten years for the past 30 years, paying into the Treasury of the United States as much as $80,000,000 per year.

Those natural advantages there in Southern California compete with no other part of the United States. They rather compete with European resorts, and prevent our people from spending their money abroad, which diverts from domestic trade channels.

The flotation of the Metropolitan Water District bonds to bring the Colorado River water into Los Angeles, is an open -- almost God given -- channel to break the vicious circle of falling commodity prices which now prevents the flow of the abundant bank credit into the channels of trade.

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does at the extreme end of a power line around which the current passes, again returning to the generating plant.

We can at once put almost 10,000 men directly to work.

We will require $17,000,000 worth of construction equipment to be supplied from almost every industrial center of the Nation.

We will require over 53,000 carloads of copper, aluminum, steel, iron, and other building materials, exclusive of, sand, gravel, aggregate, and other materials available along the aqueduct route. Those 53,000 carloads of copper, steel, etc., etc., will have to be garnered from as broad a field throughout the Nation.

As the money starts to flow into the homes of these 10,000 local needy laborers, orders for clothing, shoes, etc., will go to our merchants, from them to the wholesalers in the East, then for cloth and hides to the mills and tanners and from them on to the farmers where our raising of commodity prices will signal the return to better times. These 10,000 local men are only a very small part of the far flung employment activities. We believe that this great project is broad enough and far flung enough in its activities if started now to greatly aid in the return of better times. So we appeal to you men as the representatives of our Government to furnish us with this medium of exchange which you control so that this great wealth-creating, self-liquidating activity of both labor and capital can proceed.

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Government has awarded us the water.

We have the heavy obligation to purchase power from Hoover Dam to pump this water across the desert and through the mountains, yet we perish of thirst and die for want of food all because we lack this medium of exchange which we are prevented by the Constitution from supplying ourselves. Our wealth, - our homes, - our lives, - are behind the bonded pledge!

These successful leaders of thought and action in our several communities who accompany me here, are asking no favors. We ask that those orderly functions of government be extended to these communities of the miracle desert region, that we may have water to drink and food to eat which our people are willing to work for.

In closing, I repeat, that this Colorado River Aqueduct project will make a perceptible check in the fall of commodity prices, which now prevents the flow of bank credit into industrial channels. The Colorado River project will start the wheels of industry and employment that will radiate throughout the land. This project is backed by the marketable pledged resources of one of the richest areas in America. It is fortified by the ripe experience of a similar enterprise, conducted successfully, alone, in former times. The menacing waste waters that this Colorado project reclaims for beneficial use of 12 enterprising American communities, furnishes the self liquidating revenue for the entire cost.

Without this water our growth is forever stopped, and mayhap the fiery tongue of the Desert and salts of the Sea may

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cause our miracle region to perish.

Will you not help us make ready this self liquidating work for idle hands?

cause our miracle region to perish.

Will you not help us make ready this self liquidating

work for idle Sunday

You men and women have been called together here today for an extremely important purpose. Among you are constructive, sound leaders from every phase of our community. Never before have you had a greater opportunity to render a constructive community service to Southern California, which has been so good to all of us, than now in these trying times. In spite of present economic conditions, we are on the threshhold of a new era.

No where in the United States, nor for that matter, in any other part of the world, exists such an opportunity to create new wealth on a self-liquidating basis and at the same time give constructive employment to thousands of needy employable people.

The Colorado River Aqueduct will endure forever. When all of us are gone, it will stand a monument to our children and to each succeeding generation. When it is finished, all of us who are participating in this great work will have the satisfaction of knowing that we had a part in causing two blades of grass to grow in a desert place where those now growing are every year faced with withering drought. All statements to the contrary, I am firmly convinced that the Colorado River Aqueduct was never more needed than at present. Even now we are attracting more favorable attention than any other part of the globe. Great migrations follow great crises. In such periods the breaking up of business associations and the uprooting of the established order of things creates the opportunity for new adjustments and social combinations.

However, present conditions have made enterprising people and those who direct our industries, to weigh more carefully conditions and opportunities. Investments are made only after the most careful investigations. The scarcity of water is a crucial factor to industries contemplating an investment in desert areas. If we are to take advantage of the readjustments that will follow this depression, we must be prepared in this essential matter of water supply. To be prepared when the time comes, the District must have the support of the substantial elements of the communities which you represent in pushing forward construction of this aqueduct. The communities must be united to the task. Within your power lies the strength to bring about such a united support.

The employment that will be afforded thousands of needy citizens is a secondary consideration, but none the less important. The primary thing is that the project is sound, the water is needed, and we are capable of carrying it through as the greatest investment ever made by any people similarly located. That these primary objectives can be accomplished and at the same time afford relief to unemployment under the existing conditions, is a most gratifying thing. We of the District believe we have demonstrated our ability to carry it to a successful completion. We know we are right. We know the same evidence that has convinced us and has convinced you will convince those who find it in their heart to oppose this great civic undertaking.

The work is being carried on by a proven organization under the leadership of Mr. F. E. Weymouth in whom every one that

met him and knows of his record, can have nothing but supreme confidence.

The Directors of the Board are in every instance capable and experienced and among the best that our communities could afford. They are carrying on unselfishly and at great personal sacrifice. In every instances the obstacles that have confronted us, insuperable as they have seemed at times, have been overcome. We are winning and will continue to win. We want your support; we want you to share in our achievement. Your help is no less important in the final success than our own. We need your counsel and your efforts to maintain the undertaking on the highest civic plane so that we who are giving our time to the project may feel with confidence that our efforts are efficiently directed and are not being wasted in useless and wasteful distraction.

We of the District can assure you that the work is being carried on in a thorough and idealistic manner. It is as clean as a hound's tooth. Every one of our men, our Controller, our Treasurer, are giving unsparingly of their time, and, if possible, are more painstaking, in their determination to get a full one hundred cents' value for every dollar expended by this Board than they are in their own affairs. Never have we found that their own affairs are so important that they will not drop anything to help in the solution of our problems. Our problems are your problems. All of you know how John Bullock, Mr. Honnold, Mr. McClure, and others, gave weeks of their ~~tim~~ valuable time in Washington in obtaining a loan from the Government. They were successful and brought back

Forty Million Dollars for Southern California and Southern California's labor. This is only one illustration of the many examples that could be cited.

The purpose of this committee which is being organized today, is to make this a solid, harmonious community organization supported by every right thinking citizen of our cities. You people are qualified by experience and clear thinking, to prevent the true facts as to the water situation in Southern California from being confused and distorted by those who are selfish and shortsighted. Your very presence and participation will be an inspiration to us and will serve notice on unscrupulous politicians, or profiteering land speculators, or exploiting contractors and material men, that this undertaking is above the meanness, pettiness, and the graft ~~of~~ which have so often wrecked similarly worthwhile public projects.

Not only do we want you to be associated with us in making this undertaking a glorious success to be held up as an example to future generations of a great job well done, but we feel that yours is an equal duty and obligation to lend us your sincere conscientious support in accomplishing the ideals which I have indicated to you.

If you are with us, as I am sure you are, I know that in a few years from now you will share in the undying gratitude of the people living here and to come, who will be able to say, "Those men did just such a fine job as was done by those who built the Los Angeles Aqueduct."

Filed Colorado Paper

DISCUSSION OF THE PAPER BY WM. KELLY

ON THE COLORADO RIVER PROBLEM

By Arthur P. Davis.

ARTHUR P. DAVIS, Past President, Am. Soc. C.E. - In this interesting paper the author presents some pertinent facts, and reaches important and far-reaching conclusions, some of which, if carried out, would result in the unnecessary destruction of large natural resources of land, water and power. For this reason the speaker feels compelled to dissent from these conclusions and to give his reasons therefor.

The speaker is in accord with several of the author's maxims, as follows:

1.- No complete and inexorable plans for the development of the Colorado River should be adopted until more is known about the river, and the requirements of the future.

2.- No unnecessary evaporation should be involved.

3.- No power head should be sacrificed unnecessarily.

4.- Agricilture should be given preference over power uses.

The plan proposed by the author violates all these maxims.

Importance of Storage.- The most outstanding and important feature of the Colorado River is the great fluctuation of its flow. The low-water years yield less than 9,000,000 acre-ft. below the canyons, and the high water years yield about three times this quantity. The seasonal fluctuations are still more striking; autumn flows of 4,000 sec.ft. and less are common, and the high-water peak often reaches 150,000 and sometimes exceeds 200,000 sec.ft.

The low-water flow is already appropriated and used in ittigation, and an unusually dry season produces a shortage. Without regulation the stream will produce only about 25% as much primary power as with proper regulation, and the effect of storage won irrigation is similarly important.

In addition, the great volume and long duration of the spring floods are such as to constitute an annual menace to all the valleys of the lower river, especially to the Imperial Valley, which, if entirely submerged, would be permanently destroyed, as it is largely below sea level.

These conditions make indispensable a large volume of storage capacity which fortunately Nature has made possible and feasible, with proper conservation and utilization. This, however, is not all.

Heavy Silt Content.- Nature sends down the river an annual average of about 100,000 acre-ft. of silt, which will fill to that amount any reservoir built within or below the canyon region. This silt clogs the channel, obstructs irrigation canals, and adds greatly to the flood menace and to the cost of irrigation operations. It makes the river unfit for municipal uses, for which it will be required extensively in the near future; all these conditions will be remedied by storage, as the silt will settle in the reservoirs, and the desilting of the river is one of the major requirements in changing it from a menace to a valuable asset. The average annual volume of this silt, however, is 160,000,000 cu. yd.- a greater amount

DISCUSSION OF THE PAPER BY WM. KELLY

ON THE COLORADO RIVER PROBLEM

By Arthur P. Davis.

ARTHUR P. DAVIS, Past President, Am. Soc. C.E. - In this interesting paper the author presents some pertinent facts, and reaches important and far-reaching conclusions, some of which, if carried out, would result in the unnecessary destruction of large natural resources of land, water and power. For this reason the speaker feels compelled to dissent from these conclusions and to give his reasons therefor.

The speaker is in accord with several of the author's maxims, as follows:

1.- No complete and inexorable plans for the development of the Colorado River should be adopted until more is known about the river, and the requirements of the future.

2.- No unnecessary evaporation should be involved.

3.- No power head should be sacrificed unnecessarily.

4.- Agriculture should be given preference over power uses.

The plan proposed by the author violates all these maxims.

Importance of Storage.- The most outstanding and important feature of the Colorado River is the great fluctuation of its flow. The low-water years yield less than 9,000,000 acre-ft. below the canyons, and the high water years yield about three times this quantity. The seasonal fluctuations are still more striking; autumn flows of 4,000 sec.ft. and less are common, and the high-water peak often reaches 150,000 and sometimes exceeds 200,000 sec.ft.

The low-water flow is already appropriated and used in irrigation, and an unusually dry season produces a shortage. Without regulation the stream will produce only about 25% as much primary power as with proper regulation, and the effect of storage upon irrigation is similarly important.

In addition, the great volume and long duration of the spring floods are such as to constitute an annual menace to all the valleys of the lower river, especially to the Imperial Valley, which, if entirely submerged, would be permanently destroyed, as it is largely below sea level.

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than the total excavation performed by the Isthmian Canal Commission in digging the Panama Canal.

Desilting the river by settlement in reservoirs, fills those reservoirs to the extent of the volume of the silt deposited. Obviously, the time will come when all the reservoir space will be occupied by silt, unless some means of removal is applied. Any known method of accomplishing this is troublesome and expensive - many times as expensive as constructing additional reservoir capacity, as long as other good reservoir sites are available. It thus becomes necessary to conserve reservoir space to the greatest practicable extent.

The amount of storage necessary to equalize the flow of the river through all the years would be enormous, and hardly practicable. To just what extent it may pay to hold the water of extraordinary floods for use in dry years is a question about which the best engineers may differ, but all will agree that hold-over storage to a large extent is necessary if the river is to be properly used. It is necessary to retain a large amount of this storage in the Lower Basin, where most of the flow can be intercepted, in order to desilt the river and to control and utilize the floods of the lower tributaries.

Herman Stabler, M. AM. Soc. C.E. estimates the storage capacity necessary to maintain reasonable uniform annual flow between 10,000,000 and 20,000,000 acre-ft. The U.S. Geological Survey places it at 18,000,000 acre-ft.* which latter figure may be used for present purposes. To this must be added a large quantity for flood control, and another for the storage of silt, to prolong the usefulness of the reservoir. At the very least, 25,000,000 acre-ft. is necessary to solve the problem presented. A much greater quantity would be useful in saving the water of abundant years, but is, perhaps, not justified at present.

Storage in Upper Basin.- The author states that the reservoirs above the canyon region should be used to regulate the river for use below. This is impossible, because they have not sufficient capacity, and are situated so that they intercept only a part of the flow, leaving a large area of water-shed unregulated.

The Ouray site, the largest of those listed in the paper, should be eliminated, as the Secretary of the Interior haspromised in writing to dedicate this site to the construction of a railroad when required. The Kremmling site already has a railroad through it, This leaves as the principal known feasible sites in the Upper Basin, those given in Table 26.

TABLE 26. - Colorado River Reservoir Sites

River	Reservoir	Capacity in acre-ft.	Average run-off in acre-ft.	Cost
Green	Flaming Gorge	3,120,000	2,300,000	$16,000,000
Yampa	Juniper	1,550,000	1,200,000	4,000,000
Colorado	Dewey	2,270,000	6,800,000	11,200,000
San Juan	Bluff	1,400,000	2,300,000	8,800,000
	Total	8,340,000	12,600,000	$40,000,000

*Water Supply Paper No. 395, U. S. Geological Survey.

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These reservoirs aggregate an insufficient capacity and would be relatively inefficient as two of them, if put to use, would seldom fill for lack of water, and a third is too small to control the drainage into it. Far more important, however, is the fact that these reservoir sites are needed for local use, for which they would not be available if operated to accommodate the needs of the Lower Basin. This program would be an economic blunder of the first magnitude.

Their use for the needs of the Upper Basin may be of incidental benefit to the Lower Basin, but to dedicate them to the needs of the Lower Basin would destroy their local usefulness, and could be justified only in part, even if storage opportunities were not available in the Lower Basin; but this is not the case. The opportunity for storage in the Lower Basin is much larger, cheaper, and more efficient than in the Upper Basin. Boulder Canyon Reservoir can be built to a capacity five times as great as all the reservoirs noted in Table 26 combined, and at much less cost per acre-foot. If desired it can be built to a smaller size, at much less unit cost than the upper reservoirs and, later, can be enlarged when the encroachment of silt deposits makes it necessary.

Evaporation Should Be Minimized.- The author objects to Boulder Canyon as a large reservoir, because of alleged excessive evaporation. Curiously enough he proposes to substitute the Mohave Reservoir which has much larger area per unit of storage exposed to evaporation.

The author's curves show the comparison given in Table 27.

TABLE 27. - Comparison of Mohave and Boulder Reservoirs for Similar Capacities

Capacity in Acre-feet	Surface Area, in Acres	
	Mohave	Boulder
10,000,000	112,000	69,000
15,000,000	136,000	90,000

In addition to having an area about 60% greater for a given capacity for the height proposed, the Mohave Reservoir is 100 miles farther south, 500 ft. lower in altitude, much shallower, so it will become more heated, and is on an open plain, where the winds would have freer sweep than in Boulder Canyon. All these factors would have a tendency to increase the relative evaporation at Mohave; thus, for a given capacity, Mohave would probably have more than 75% more evaporation than Boulder Canyon Reservoir, if devoted to similar uses. Certainly, this new favorite cannot qualify on the score of economy of water.

Colonel Kelly seeks to justify this waste, by claiming a very large evaporation from the Mohave Valley in its present state. It is true that this valley now overflows, and, of course, experiences evaporation losses in proportion to the overflowed area; but if it is reclaimed, as it should be, the water applied to it would be usefully consumed in irrigation, and not wasted like that evaporated from a reservoir. Water evaporated from Mohave Reservoir is as

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truly wasted as if lost from any other reservoir in the Basin and such evaporation is much greater in proportion to storage capacity than from any other proposed reservoir in the entire Basin, on account of its relatively broad shallow character. As far as loss of water is concerned, it is by far the poorest site proposed.

The author charges that the height of dam proposed by the Reclamation Service - 605 ft. - would make impossible the development of an 80-ft. fall between its back-water and Diamond Creek. This is not the case, for the dam in Boulder Canyon might be built 80 ft. higher whenever the additional capacity is needed in the future. This would have the merit of concentrating the power development at one plant instead of two, and save 80 to 100 miles of transmission line to the Coast. This height of dam, backing the water to Diamond Creek, is one of the alternatives presented by the Reclamation Service. On this fallacious claim, the author has based most of his condemnation of the proposal of the Reclamation Service.

The fact is, the Reclamation Service presented five alternative heights of dam, one of which is nearly that which the speaker prefers, 570 ft., backing water to the dam site at Bridge Canyon and creating a capacity of about 28,500,000 acre-ft.; it would cost about $43,000,000 and develop nearly 600,000 continuous h.p. or 900,000 on a two-thirds load factor. Marketed at 4 mills per kw., it would amortize the investment in about 40 years, meanwhile taking care of flood control and irrigation.

The author states that the water supply of the Colorado is insufficient to irrigate the land available for irrigation, yet he objects to a large reservoir capacity on the ground that it would waste water by evaporation, and insists on providing for passing the surplus at the rate of 80,000 cu. ft. per sec. rather than storing and using it for power and irrigation.

It should be emphasized that a dam of the height here proposed will develop power at a lower unit cost than any dam of less elevation, so that the additional storage for irrigation and the additional security against floods cost nothing. It is certainly better to hold the floods by storage, even if part of the water does evaporate, than to let them run to sea, and fight them en route as demanded by Colonel Kelly.

Power Market.- Concerning the market for power, the author says: "It is not extravagant to conclude that all power in the Canyon Section of the Colorado may be absorbed in the next 25 or 30 years." This is a higher rate of demand than was assumed in the estimate of the Reclamation Service, but evidently it is justified.

The Southern California Edison Company has repeatedly expressed willingness to expend from $30,000,000 to $40,000,000 per year to develop power in the Canyon if given the privileges.

The City of Los Angeles offers to take all the power allocated to it from the Boulder Dam after States and other municipalities are satisfied, and the electors recently voted by a large majority to authorize the City Council to negotiate such a contract. The city is certainly a responsible customer, and with all this evidence there need be no doubt that a ready market will be found for the power.

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Mohave Reservoir Wasteful & Distructive. The alternative reservoir strongly advocated by the author is at Mohave Canyon. Not only is the Mohave Reservoir extremely wasteful of water by evaporation, but will require the removal of about 20 miles of double track on the main line of the Santa Fe Railroad, increase its length about 3 miles, destroy the great bridge at Topock, submerge the large railroad hotel, roundhouse, machine-shop, icing plant, 24 miles of yard tracks, and the entire City of Needles. It will also require the reconstruction of part of the Santa Fe Trail Highway. These damages have been included in the estimate, and the cost will be about as much as the dam itself. There is not included, however, the important fact that this reservoir would also submerge the whole Mohave Valley containing nearly 30,000 acres of rich, irrigable bottom-land for which there is an ample water supply when storage is provided, and that this water cannot be used elsewhere except in Mexico, because the regulated water supply is ample for all lands feasible of irrigation in the United States, including the Mohave lands.

Nature has provided two feasible dam sites that will utilize all the head available here, without submerging the Mohave Valley. One of these sites is above, at Bulls Head, and one below, near the mouth of Williams River. The latter is necessary for a high diversion dam for the Parker-Gila Valley Project, the construction of which the author assumes. It would be built to the greatest height possible without damage to the City of Needles, or about 100 ft. The proposed dam in Mohave Canyon would conflict with this, and would also submerge the dam site at Bulls Head, just above the Mohave Valley. It would leave undeveloped 40 ft. of power head below Boulder Canyon which would thus be lost.

The dam site in the Mohave Canyon was examined twenty years ago and at intervals since by various engineers, including William Mulholland and J. B. Lippincott, Members, Am. Soc. C.E. and on account of the destruction of land, water and other property, was unanimously regarded as infeasible, and for this reason, its foundations were not explored. Any money spent thereon would be wasted for reasons already given. It was never seriously advocated until it became necessary to kill the proposal to build a dam in Boulder Canyon and develop enough power to repay the cost. This emphasizes the real point at issue, that is, whether the immense resources of the Lower Colorado are to be retained in the control of the Federal Government or turned over to private corporations. This is a question on which engineers and others may honestly differ, and which the speaker will not discuss. It should be considered on its merits, and not combatted indirectly to the great sacrifice of the natural resources of land and water.

Wanton Destruction of Valuable Storage.- Perhaps the most destructive feature of the author's plan, is the proposed building of a high dam at Devil's Slide, this restricting the height of the Boulder Dam to 387 ft. and its storage capacity to about 10,000,000 acre-ft. Such a reservoir would rapidly fill with sediment, and thus be destroyed much earlier than necessary.

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It has been shown that large storage capacity is necessary to convert the Colorado River from a destructive torrent into a source of vast wealth, and that this storage will steadily be destroyed by silting. Yet, here is a proposal to build a high dam in the middle of the best reservoir site in the Bason, and thus wantonly destroy its value. It is idle to reply that other reservoirs can be provided above, because these are of limited capacity, and, therefore, of limited life; moreover, they do not intercept all the water nor all the silt.

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The speaker's plan would be to build the Boulder Dam to a height sufficient to back up water to the dam site at Bridge Canyon. This dam would impound about 28,500,000 acre-ft. of water, control floods more perfectly than any smaller reservoir, and develop power more cheaply than any smaller dam, in sufficient quantity to repay its cost with interest.

Next, the Parker site should be improved to serve as a diversion dam for irrigation and municipal supply. With complete regulation at Boulder Canyon it will be a good power site.

A dam at Bulls Head will back the water to the base of Boulder Dam, and with the regulation of that dam, will constitute a good power site. This leaves three alternatives for the development of the power head above Boulder Canyon, between Bridge Canyon and the National Park Boundary, as follows:

1. - If on that future day it is decided that more storage is necessary, the Boulder Dam can be raised 120 feet, its gross capacity increased to 48,000,000 acre-ft., less the accumulated silt, and the water backed to Diamond Creek, where a dam would be built to back-water to the National Park.

2. - If it is then definitely decided that no more storage will ever be needed a dam can be built at Bridge Canyon to back-water to the Park Boundary.

3. - If the decisio n is that additional storage may be needed some day, the dam at Diamond Creek can be built, and the space between this and Boulder reservoir can be left open for still further consideration, that is, whether to build Boulder Dam higher, or to build a dam 128 ft. high at Bridge Canyon.

In any event, the construction of the dam at Devils Slide, as proposed, would be a serious economic blunder, as it would destroy the best reservoir site in the Basin, and seriously limit the usefulness of the river.

The plan proposed herein would utilize every foot of head between Parker and the National Park, except 38 ft. in the Mohave Valley, which would this be preserved for agriculture, complying with the fourth maxim mentioned previously as to the preference given to agriculture over power.

It complies with the first maxim, leaving several alternatives open for decision in the light of future information. It likewire complies with the other maxims. Contrasted with this, in the scheme to issue corporate licenses for Diamond Creek, Devils Slide, and Boulder Canyon, and build a Government dam at Mohave Canyon, as proposed by the author, and shown on Fig.21 (b) for comparison. The

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two plans would have the results given in Table 28.

TABLE 28.- Comparison of Plans.

Site	Head, in feet	Surface area in acres	Capacity, in acre feet
		DAVIS' PLAN	
Williams	100	90,000	2,900,000
Bulls Head	150	20,000	1,600,000
Boulder	570	138,000	28,500,000
Bridge Canyon	570	16,000	3,000,000
Total ...	1,390	264,000	36,000,000
		AUTHOR'S PLAN	
Mohave	180	130,000	13,000,000
Boulder	387	69,000	10,000,000
Devil's Slide	298	4,000	400,000
Diamond	445	13,000	1,900,000
Total--	1,310	216,000	25,300,000

It will be noted that the plan here proposed develops 80 ft. more head, and uses this head far more efficiently than the author's plan because its regulation is both greater and higher up the stream. Its power output would be greater by several hundred thousand horse-power.

The evaporation surface by the latter plan would be greater by about 22%, but owing to differing conditions already enumerated, the evaporation would be only slightly greater and the storage afforded would be 10,700,000 acre-ft. greater, and would endure more than 100 years longer. It does not submerge Mohave Valley, as proposed by the Author's plan. In every respect, therefore it is better.

A further comparison may be made by omitting the dam near Williams from Table 28. This produces the exhibit shown in Table 29.

TABLE 29.- Comparison of Plans - Williams Reservoir Omitted.

	Head, in feet	Surface Area, in acres	Capacity, in acres
Davis' Plan.....	1,290	174,000	33,100,000
Author's Plan....	1,310	220,000	25,800,000

two plans would have the results given in Table 28.

TABLE 28.- Comparison of Plans.

Site	Head, in feet	Surface area in acres	Capacity, in acre feet
DAVIS' PLAN			
Williams	100	90,000	2,900,000
Bulla Head	150	20,000	1,600,000
Boulder	570	138,000	28,500,000
Bridge Canyon	570	16,000	3,000,000
Total ...	1,390	264,000	36,000,000
AUTHOR'S PLAN			
Mohave	180	130,000	13,000,000
Boulder	387	69,000	10,000,000
Devil's Slide	298	4,000	400,000
Diamond	445	13,000	1,900,000
Total--	1,310	216,000	25,300,000

It will be noted that the plan here proposed develops 80 ft. more head, and uses this head far more efficiently than the author's plan because its regulation is both greater and higher up the stream. Its power output would be greater by several hundred thousand horsepower.

The evaporation surface by the latter plan would be greater by about 22%, but owing to differing conditions already enumerated, the evaporation would be only slightly greater and the storage afforded would be 10,700,000 acre-ft. greater, and would endure more than 100 years longer. It does not submerge Mohave Valley, as proposed by the Author's plan. In every respect, therefore it is better.

A further comparison may be made by omitting the dam near Williams from Table 28. This produces the exhibit shown in Table 29.

TABLE 29.- Comparison of Plans - Williams Reservoir Omitted.

	Head, in feet	Surface Area, in acres	Capacity, in acres
Davis' Plan.....	1,290	174,000	33,100,000
Author's Plan....	1,310	220,000	25,800,000

By this comparison over the same stretch of the river, the author's plan develops about 1½% more head, but owing to better regulation, higher on the stream, the speaker's plan would develop far more power. The latter wouldexpose 46,000 less acres to evaporation, in a region where the rate of evaporation would be less, and afford more than 7,000,000 additional acre-feet of storage capacity, and, hence, would last 70 years longer; and it would not submerge the fertile Mohave valley. It is clear, therefore, that the plan proposed by the author does not conform to the best development of the river and that it violates each of the maxims enunciated.

For irrigation and flood control, the Mohave site has no advantages over the Boulder site, as there are no tributary streams between, but the Boulder Reservoir would protect the Mohave Valley from floods, provide it with irrigation storage, and facilitate its reclamation, while a dam in Mohave Canyon would submerge and destroy that Valley forever.

Storage in Boulder Reservoir would be beneficial for power development at Boulder Canyon, Bulls Head, and Williams, a total fall of 820 ft., while that at Mohave could be of no benefit for power except at its own site, which is so unfavorable that none of the power companies has applied for it. Storage at Mohave, therefore, would require duplication somewhere above, for power development.

POOR ROCK in GLEN CANYON.- The author expresses disagreement with the Consulting Board that examined the dam site above Lees Ferry in Glen Canyon and advised limiting the pressure on the rock to 20 tons per sq. ft. on account of its soft, friable character.

This Board included four experienced engineers all of whom have borne the responsibilities of designing and building some of the world's greatest dams, including the Don Pedro, Arrowrock, and Roosevelt Dams, and an eminent geologist, who made a very careful examination of the site and the material. It seems rather bold for one who has made no such examination to overrule them summarily on the strength of three samples of drill cores. Any one experienced in diamond drilling knows the presistant tendency of the core fragments to grind each other to powder in the rapidly revolving core-barrel, so that the soft parts are washed out and only the hardest survive. So great is this tendency, that the recovery of 100% of core even in the hardest rock is rare.

The rock in Glen Canyon is so soft that it is difficult to break off a sample without crushing it; and such a sample carried in one's luggage for a few days is apt to yield more fine sand than rock. The caution of the Consulting Board was clearly well founded.

INCREASE OF LOW-WATER FLOW.- The author opposes the increase of the low-water flow of the Colorado. He says:

"The Boulder Project would provide water in the Lower Basin at all seasons far in excess of present irrigation requirements. This water will pass into Mexico and there will be used for irrigation. Once used, its withdrawal for use in the United States will be difficult if not impossible."

The opposition to development is entirely unfounded. The proponents of the Boulder Project suggested the insertion of a clause in the bill reserving the benefits of storage to the United States. Legally and morally such a reservation is not necessary,

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but it would be good policy. Having provided the storage facilities, the United States would have both legal and moral rights to its benefits. The American lands being higher on the stream, these rights are easy of enforcement.

On the other hand, the regulated water being subject to appropriation on American lands would facilitate development in Arizona and California, and the feasible irrigation project in those States would just about absorb those waters as they come from the power plants. To irrigate additional lands, as those in Mexico, it would be necessary to re-regulate the waters, which would be entirely in the hands of the American authorities.

TIME OF CONSTRUCTION.- The author states that flood control can be obtained more quickly by a dam in Mohave Canyon, than by one in Boulder Canyon, and compares the estimated time of contructing a large reservoir in Boulder Canyon with a much smaller one in Mohave Canyon. The investigations of Boulder Canyon have occupied nearly three years, and Colonel Kelly states that they are not sufficient. No investigations of Mohave Canyon have been made, and after these are completed, it would be necessary to take up negotiations with the railroad and hotel companies and hundreds of property owners for the removal of the railroad and the City of Needles. Such measures afford endless opportunity for delay whether carried out under private negotiation or by condemnation proceedings.

No such difficulties are found at Boulder Canyon, and it is believed that a reservoir of any given capacity can be built there more quickly than anywhere else, if all reasonable precautions are observed.

THE UPPER BASIN'S INTEREST IN BOULDER CANYON.- Four times in recent years, beginning in 1915, the irrigators of Imperial Valley have required and have taken from the Colorado River all the water flowing therein; each time it was less than the actual needs and a shortage occurred. As development progresses, this condition will be more frequent and intense, and if with present development, another series of low-water years should happen, such as occurred before and after 1902, the water shortage would be prolonged and disastrous.

Under the principles of the Supreme Court decision in the Wyoming-Colorado Case, the farmers of Imperial Valley would have the right to cause to be closed during the period of shortage the headgates of all canals above them, that are junior to their appropriations of 1900 and earlier. This would include all three of the Government projects in the Upper Basin, two in Colorado and one in Utah, and many private enterprises as well which have hard enough struggle without adding water shortage and litigation.

The irrigators in the Lower Basin do not desire litigation, as is shown by their avoidance of it during the past shortages. If a large reservoir is built and the water regulated, there will be plenty of water for them so there will be no litigation. The representative from Imperial Valley has testified that the District is willing to yield all claim to the low-water flow in exchange for a right in the reservoir, and no doubt the other irrigators served from the reservoir would do the same.

Without storage in the Lower Basin, the junior rights in the Upper Basin are in continual jeopardy, and the situation must become more and more a handicap to the financing of new irrigation enterprises in the Upper Basin. A large reservoir at Boulder Canyon will correct all this, and make water rights above secure from molestation. A small reservoir will not have this effect.

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The author proceeds throughout the paper on the theory that a reservoir of, say, 4,000,000 acre-ft. capacity, would be as efficient for flood control as an equal capacity on the top of a reservoir six or eight times as large. This is not the case.

If a reservoir with a capacity of 25,000,000 or 30,000,000 acre-ft. were provided to regulate the river, it would, by constant use and discharge of the stored waters, enter the flood season with its storage depleted to an extent exceeding 8,000,000 acre-ft. and any capacity held especially for flood control would be added to this. Therefore, the available storage for controlling floods would be several times the total capacity of the small reservoir proposed by the author, and its efficiency correspondingly multiplied.

It is conceivable and possible to provide a reservoir at Boulder Canyon of such magnitude that the stream would be equalized through a series of years to a discharge of about 20,000 cu.ft. per sec. to be used for the development of power or some other beneficial purpose. Although such complete control might not be justified, any large reservoir approaching a capacity of 30,000,000 acre-ft. would approximate this result, and assure beginning the flood season in April with more than 10,000,000 acre-ft. of available space at the top of the reservoir to receive and regulate the summer floods. Any surplus received could be discharged during the flood season or soon after and not carried on to February, as alleged by the author.

Colonel Kelly ignores the great fundamental fact that the larger the reservoir provided, the more complete will be the control of floods and the more water will be available for power and irrigation; and the larger the reservoir, up to 35,000,000 acre-ft., the cheaper the unit cost of power developed, so that the added value for other purposes costs nothing.

He also ignores the fundamental fact that a deep reservoir of a given capacity with a moderate surface area will lose less water by evaporation and furnish more head for power than a broad shallow reservoir, which although it might require only a small amount of masonry for its dam, requires a vast outlay for damages to cities, railroads, and other property, and costs about the same per acre-foot stored, besides destroying a great alluvial valley susceptible of high development.

The author deserves thanks for the frank official declaration of the settled policy of the Federal Power Commission, in his statement that:

"All the development needed on the Colorado will be built by private capital under adequate Federal and State regulation if the river is given over to development under the Federal Water Power Act."

This declaration is in the face of the mandatory provision of the law that the Commission shall give preference to applications from municipalities, such as are on file for the privileges of the Colorado power sites. That this defiance of law is a settled policy of the Power Commission is an important fact in considering legislation affecting not only the Colorado, but any other stream under its jurisdiction.

If the author really believes this statement that the Mohave is a good power site, and should be the first development, why does he not require the power companies to begin their development by building the Mohave Reservoir? None of the power companies have applied for this privilege, and they would probably spurn it, as the results would not pay for the damages caused to railroads and other property. The mere mention of such a proposition should be considered absurd, as it really is.

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CALLING ROBT SPEARS LA OFFICE

At five fifteen oclock this morning Tuesday Metropolitan Water District Tunnel workmen and executives removed the Wenzel and Henoch Construction Company from all control of the San Jacinto Tunnel job on the Colorado River Aqueduct took full possession of the work and immediately set underway construction activities on this thirteen mile Aqueduct tunnel.

Construction work on this section of the Giant Aqueduct was at a standstill when Metropolitan Water District forces took possession this morning Wenzel and Henoch Company had ceased all tunnel driving operations Saturday afternoon February 9 and had notified the District that this work would be suspended indefinitely or until the settlement of litigation then pending. No resistance was offered when Metropolitan Water District forces took over the job today. The decisive move of the District in taking over this tunnel work with its own forces followed the action of General Manager and Chief Engineer F. E. Weymouth when on January 15 he officially notified Wenzel and Henoch Company that its contract had been suspended because of unnecessary and serious delays in its construction program. He pointed out that the firm was more than seven months behind its construction schedule and that it had failed to indicate any disposition or ability to improve its rate of construction progress.

Steps to remove the Wenzel and Henoch Company from the San Jacinto Tunnel and place this job under District operation and control were effected early today under the leadership of Assistant General Manager J. L. Burkholder of the District. The San Jacinto Tunnel will pierce a flank of the lofty San Jacinto Mountain and is being

driven from three construction centers. These construction points are located at the West Portal of the tunnel near the town of San Jacinto, at the Potrero Shaft eleven miles southwest of Banning and the Cabazon Shaft near the village of Cabazon in San Gorgonio Pass. Just as dawn was breaking over the mountain peaks along this Aqueduct section three picked crews of tunnel workmen, engineers and executives moved in on the three tunnel construction centers each crew numbering approximately thirty men. The crews were lead by experienced tunnel construction superintendents rrom the District Coachella Tunnel Division which is being constructed by District forces. All of the tunnel workmen likewise have been taken from the District tunnel camps in that Division.

Within a few minutes after the tunnel crews arrived on the scene the District was in full possession of the work.

C. R. Rankin nationally known tunnel construction man was placed in direct charge of the San Jacinto Tunnel work.

Chairman W. P. Whitsett expressed gratification today that work had been resumed on the san Jacinto Tunnel. Mr. Whitsett was on the Aqueduct line inspecting construction work when notified of this move today by Assistant General Manager Burkholder.

"Citizens of the Metropolitan Water District should be assured that henceforth construction work on the critical San Jacinto Tunnel section of the Aqueduct will be pushed forward vigorously, efficiently and without one moment of delay,"

said Mr. Whitsett

"Further delay in the construction of the San Jacinto

Tunnel would have meant terrific and I believe irreparable losses to taxpayers of the District. Every effort was made by the District to assist the contracting firm which had this job and to give it every possible opportunity to make good. Notwithstanding the Districts' efforts, the contractor continued to fall behind to such an extent as seriously to endanger the interests of the District. When the firm on last Saturday laid off all of its construction forces and ceased all tunnel driving work, the District had no alternative but to take over the work

"Except for this one Aqueduct section construction work all along the 250 mile Aqueduct front is progressing satisfactorily and is ahead of schedule time. San Jacinto Tunnel must be brought in line and the Districts experienced engineers and workmen are on the job to see that this is done."

Wenzel and Henoch Company had refused to surrender the San Jacinto tunnel work when General Manager Weymouth suspended its contract January 15. The District sought to prevent the contractor from interfering with its efforts to take over the work when it petitioned the Federal Courts to enjoin Wenzel and Henoch from such interference. Federal Judge McCormick on February 6 granted a hearing on this petition and at that time it was expected that several weeks would elapse before the case could be brought to trial.

After Wenzel and Henoch suspended all construction work Saturday afternoon, February 9, District officials went before the Federal Court yesterday, Monday, and upon the motion of District General Counsel James H. Howard the Court Dismissed the case.

Don Kinsey

Ladies and Gentlemen:

To the thousands of you here assembled, and to the other thousands who by means of the radio are joined with us, I bring greetings from the Board of Directors of The Metropolitan Water District of Southern California.

It is with a humble spirit, but a natural feeling of pride that we set our hands to the task of building the greatest water supply project ever so far undertaken by man in his efforts to live in communities and enjoy the accumulative knowledge of the past which civilization has passed on to us.

Water is as vital to the lives of our cities, farms, and industries as it is to our bodies.

The tunnel which at this point will enter the snow-capped peak towering above us, marks the transition point of the Aqueduct where it leaves behind the desert and comes forth to discharge into the pulsing arteries of our communities gathered within the encircling folds of these hills and the gentle, blue waters of the broad Pacific. It is entirely fitting that we should dedicate this great structure in such an imposing manner.

Not alone are we to benefit by the work here started, but to our children and those who follow them, and to the countless people everwhere who come to us in ever-increasing numbers in quest

of the comfortable life and the pursuit of the treasures of the mind and spirit, will redound the benefits of this undertaking. Mankind has always longed to dwell among the beauties of nature under tranquil blue skies. To the little home surrounded by its fruitful garden, and to the mighty industry alike, will come the life-giving water taken from the Colorado River fed on the eternal snows of the Rockies.

Let us pause a moment to contemplate the magnitude of the structure we have undertaken to build. Two hundred and twenty million dollars, or as much of it as may be necessary, are available to meet the cost. For 226 miles the conduit will wind its way across the desert through mountain ranges, climb step by step up the slope until at this point it disappears into the mighty San Jacinto peak to burst forth on the other side to the full view of the Pacific not a hundred miles away.

The water to be conveyed each year would cover a million acres to the depth of a foot. The system to convey this water to the cities and towns will involve three hundred additional miles of conduit. On the main trunk of the aqueduct, there will be eighty-nine miles of tunnel large enough to encircle the largest locomotive in existence.

Over forty million pounds of power will be required by the thousands of workers in blasting their way through the mountains. The steel, cement, lumber, the equipment of a thousand kinds, will inevitably be drawn from all parts of the Nation. Directly and indirectly, the benefits will accrue to all parts of the Nation. So complex, and so interrelated, are all parts of the

economic system of our country, that a constructive activity in one part must inevitably in devious but traceable ways, carry its benefit to those of the smallest town in the most remote area.

The Board of Directors of the District, with a full realization of its responsibility and with confidence as to the outcome, joins with the people of Southern California in expressing to the Nation appreciation for the privilege of making a material contribution to the recovery of prosperity by cooperating with the forward-looking leadership in providing extensive employment both among our own people and elsewhere in the construction of an undertaking of a type which is the soundest investment that a people can make - that is, in a construction of an ample but necessary water supply.

Please release. Copy to W. P. Whitsett

MEMORANDUM

REMARKS BY W. P. WHITSETT AT METROPOLITAN WATER DISTRICT MEETING - LOS ANGELES ADVERTISING CLUB - BILTMORE HOTEL TUESDAY, MAY 15, 1934

The Need for Water

Many contended three years ago that we were at the end of our dry cycle. Now they are beginning to wonder which end, for as they delve deeper into the obscure record of the 100 years preceding the short period we have been keeping authentic hydrographic records of rainfall they discover that trees were growing in the bottom of Lake Elsinore....that Indians had built stone huts on the bottom of Mono Lake which are still under water....that the trail of the 49-ers comes down the mountain side, crosses an arm of Goose Lake, goes up the other side and the wheel tracks are still deeply submerged. By placing other fragmentary records together they come to the conclusion that a drought prevailed from 1781 to 1809 lasting 28 years, and again from 1841 to 1883 lasting 43 years. Interspersed through these protracted droughts were abnormal rainfall years and torrential floods similar to those we have recently had.

This interspersing of wet years and abnormal floods fooled many investigators into trying to divide the cycles into shorter periods, basing their hopes for the future on an average of this more bountiful rainfall period. But why fool ourselves with an average rainfall in desert places?

When water is like the very air we breathe, enough is a God's sufficiency. Yet we would give all we are worth for just one drink if we were dying of thirst. We can go 40 days without food and if we continue long enough die quiet a comfortable death. But if we were without water in a desert place for a very short time our tongue would swell up and turn black, our eyes become bloodshot,

our vision and mind deranged, and the agony that would soon precede death is too excruciating to relate.

Construction

To meet this threat the Metropolitan Water District of Southern California has accepted the challenge of the desert. The Directors representing you are giving unselfishly of their time and ability. No salaries are paid any of the Directors of the District, the Controller or the Treasurer. Frank E. Weymouth, our General Manager and Chief Engineer, is preeminently the best-qualified man in America to build the Colorado Aqueduct and never before has there been assembled such a capable staff of engineers and technicians on a similar project. And never before has there been such synchronization of human energy and modern gigantic tunnel-driving machinery.

It just seems that men, after cutting foxtail, manicuring mountains and wheeling sand from plact to place are hungry for he-man honest-to-God wealth-creating activity. The superior hospitalization, feeding and housing furnished, stimulate them still further, until it would not surprise some of us if we drove one-half a six-year tunnel-driving program this year.

If the present drought continues and this situation becomes grave enough we feel sure our engineering staff could find a way to get water piped around San Jacinto by using temporary distributing mains and main line pumps, to be used elsewhere two years later when San Jacinto is completed on our regular schedule in 1938.

We have 4,000 men with the most modern tunnel-driving equipment forcing their way through the mountain barriers between here and the Colorado River and are prepared to put 12,000 more men to work almost immediately upon receipt of word that money is available to complete the task.

Consider what it means to this nation at this time to spend money on labor when every dollar will be repaid with interest and 16,000 men employed at wealth-creating activities; when three times that number can be indirectly employed furnishing equipment, materials and supplies; over 50,000 workers supplying purchasing power to a quarter of a million persons, creating new wealth, new activities, new opportunities.

There can be no more threat of drought to those cummunities that are members of the Metropolitan Water District of Southern California, with these opportunities for rushing aqueduct water here from the Colorado River.

Contrast this bright hope with the depths of despair we would be in now if this great project were not now going forward.

Benefits

Down through the years migrations have followed drastic conditions. Want and suffering, the breaking up of business relationships, the uprooting of home ties, tend to exhilarate this natural trend of looking about for greener pastures, and there comes a definite wave of decentralization from the large industrial centers of the East back to the subsistence farms to regain security and independence. On top of this comes the shorter-hour day and shorter-day week.....time accumulated into vacation periods in which to travel about and make comparisons of the most desirable place to locate. Speeded still further by highly-improved national highways, inexpensive light speedy autos, airconditioned stream-lined trains, daylight airplane flights from the Atlantic to the Pacific, and the further discovery that the dollar buys more of the pleasures, luxuries and necessities of life in California than in Europe. We are rediscovering the Panama Canal and if one has the time and needs an ocean voyage one can come to California by water.

I have believed and advocated the subsistence farms as a solution of our economic and political difficulties for over 30 years. I visited the little

War gardens throughout Europe after the War and I want to tell you, as a result of these studies and investigations, there is nowhere else that one can grow such a wide diversification of food products 365 days in the year as right here on a subsistence farm located in our fertile valleys of Southern California with aqueduct water.

And there is nowhere else in all the world to be found those conditions of sun and climate, ocean, valley, mountain, desert and city which make for comfort, contentment and happiness in such close proximity to each other, as right here where we are now assembled.

You members of the Advertising Club, you messengers of good will, you molders of thought and action, can carry this message of hope and cheer to the four corners of the world.

If you do, you will garner here sufficient men of experience, ability and means to occupy every acre of land that the Colorado Aqueduct can supply water to. And these men of experience and means who come here as a result of your message will help to bear our burdens and add their great ability to ours in carving this Empire from the desert, building here under the blue skies of California the finest civilization of this World.

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REMARKS BY J. B. LIPPINCOTT
ADDRESSED TO THE MEMBERS OF THE LOS ANGELES SECTION
OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS
AT A MEETING HELD FRIDAY, OCTOBER 5, 1934.

DURING THE LAST FEW WEEKS STATEMENTS BY THE SECRETARY OF THE INTERIOR HAVE APPEARED IN THE PRESS THAT THE NATIONAL PUBLIC WORKS CONSTRUCTION PROGRAM SHOULD BE CONTINUED ON A LARGE SCALE AND BE MAINTAINED AS A PERMANENT PROGRAM FOR THE DEVELOPMENT OF THE COUNTRY AND EMPLOYMENT OF LABOR. IF THIS IS TO BE THE POLICY OF THE FEDERAL GOVERNMENT THROUGH A PERIOD OF YEARS IT BECOMES A SUBJECT OF SPECIAL INTEREST. IT IS INSTRUCTIVE TO NOTE HOW SOME MAJOR PROJECTS WHICH HAVE BEEN ADOPTED AND ARE NOW UNDER CONSTRUCTION, ARE BEING FINANCED.

CALIFORNIA DELEGATIONS HAVE BEEN TOLD OF LATE BY VARIOUS FEDERAL AUTHORITIES THAT WE HAVE HAD OUR SHARE OF NATIONAL AID AND OUR PROPER POSITION IS TO GO BACK AND SIT DOWN AND ALLOW OTHERS TO RECEIVE THEIR ALLOTMENTS.

THE FIRST RECENT GREAT WESTERN CONGRESSIONAL APPROPRIATION THAT COMES TO MIND, FOR A NATIONAL CONSERVATION PROJECT, WAS IN 1929 WHEN $325,000,000 WAS APPROPRIATED FOR THE BUILDING OF LEVEES FOR CONTROL OF THE FLOODS OF LOWER MISSISSIPPI RIVER. THE ACT OF CONGRESS OUTLINES THE VARIOUS PROGRAMS THAT ARE TO BE CARRIED OUT UNDER THIS AUTHORITY AT NATIONAL EXPENSE. THE BENEFICIARIES OF THIS PROJECT ARE ONLY OBLIGATED TO PROVIDE FOR ORDINARY MAINTENANCE WORK FOR THE PROTECTION OF THE LEVEES, SUCH AS CUTTING OF GRASS AND WEEDS. THERE IS NO PROGRAM OF REPAYMENT OF THIS $325,000,000 AND NO LOCAL BOND ISSUE IS INVOLVED. THE APPROPRIATION IS A DIRECT FEDERAL GRANT BASED LARGELY ON THE THEORY THAT IT IS FOR THE AID OF NAVIGATION. IN FACT THE WORKS ARE BEING BUILT MOSTLY TO PREVENT OVERFLOW OF DEVELOPED AREAS.

IN PASSING AROUND THE PERIMETER OF THE SOUTHWEST OUR NEXT GREAT PROJECT IS IN THE TENNESSEE VALLEY. THE ARMY ENGINEERS HAVE ESTIMATED THAT TO FULLY CARRY OUT THIS ENTERPRISE WILL REQUIRE THE EXPENDING OF ONE THOUSAND MILLION DOLLARS. THIS ENTIRE BILLION DOLLARS HAS NOT NOW BEEN APPROPRIATED BUT FUNDS HAVE BEEN MADE AVAILABLE FOR THE BUILDING OF SIX DAMS, THE ESTIMATED COST OF WHICH IS $110,000,000. THERE IS ALSO A TENTATIVE PROGRAM FOR THE IMPROVEMENT OF NAVIGATION ON THE RIVER AT A CONSIDERABLE ADDITIONAL COST.

THE TENNESSEE PROJECT IS INTENDED TO AID THE DEVELOPMENT OF THE TENNESSEE VALLEY BY THE CREATION OF HYDRO-ELECTRIC POWER PLANTS AND THE DISTRIBUTION OF WHOLESALE POWER BY THE GOVERNMENT AND SOME OF THE COSTS WILL BE RETURNED IN THIS MANNER. AS FAR AS I KNOW, THERE ARE NO BONDS THAT HAVE BEEN ISSUED BY THE STATE OF TENNESSEE OR ANY DISTRICT TO ANY FEDERAL AUTHORITY GUARANTEEING REPAYMENT TO THE GOVERNMENT AND NO OBLIGATIONS ASSUMED BY THE BENEFICIARIES OF THIS PROJECT. THE FEDERAL GOVERNMENT IN CONNECTION WITH ITS POWER PROJECT IS HELPING TO FINANCE THE MANUFACTURE OF CHEAPER ELECTRICAL EQUIPMENT AND IS FINANCING THE BUYERS OF SUCH EQUIPMENT. THE PROJECT IS A DIRECT ADMINISTRATION MEASURE.

IN PASSING MERE MENTION IS HERE MADE TO THE ANNOUNCED PROGRAM OF THE FEDERAL GOVERNMENT TO PURCHASE AT PUBLIC EXPENSE ENORMOUS AREAS OF LAND EXTENDING FROM THE CANADIAN BOUNDARY TO THE GULF OF MEXICO THROUGH THE WESTERN PORTION OF SEMI-ARID AMERICA FOR THE PURPOSE OF PLANTING A GREAT FOREST THEREON, ALLEGED TO BE FOR THE PURPOSE OF IMPROVING THE CLIMATIC CONDITIONS THROUGHOUT THAT GENERAL REGION.

WE NEXT COME TO THE MISSOURI RIVER WITH THE FT. PECK DAM PROJECT. THE FT. PECK PROJECT IS ESTIMATED TO COST $86,000,000. IT INVOLVES THE BUILDING OF AN ENORMOUS SAND AND GRAVEL HYDRAULIC FILL DAM ON A SANDY FOUNDATION. THE WAR DEPARTMENT IS IN CHARGE OF THE WORK. THE ANNOUNCED PURPOSE OF THE FT. PECK PROJECT IS TO MAKE THE MISSOURI RIVER NAVIGABLE AS FAR AS THE SOUTHERN BOUNDARY OF THE DAKOTAS. THERE IS REFERENCE ALSO TO IRRIGATION AND POWER DEVELOPMENT BUT WITHOUT DEFINITE AGREEMENTS THAT I KNOW OF FOR THE PURCHASE OF THESE PRODUCTS. I HAVE LIVED ON THE MISSOURI AND A GOOD MANY OF YOU HAVE SEEN IT. AS A NAVIGABLE STREAM IT IS NOT APPEALING AS A TRANSPORTATION AGENCY. IT RESEMBLES THE LOWER COLORADO RIVER IN THIS RESPECT. SENATOR INGALS, FORMERLY REPRESENTING THE STATE OF KANSAS, IS REPORTED TO HAVE SAID OF THIS RIVER: "IT IS A THING TOO WET FOR CULTIVATION AND TOO DRY FOR NAVIGATION."

I AM NOT FULLY INFORMED ON THE SUBJECT BUT IT IS MY IMPRESSION THAT THE ARMY ENGINEERS HAVE NOT ENDORSED THE ECONOMICS OF ATTEMPTING TO MAKE THE MISSOURI RIVER NAVIGABLE AS FAR AS THE SOUTHERN BOUNDARY OF THE DAKOTAS, NOR DO I KNOW OF ANY ENGINEERING BOARD THAT HAS APPROVED OF ITS FINANCIAL ADVISABILITY. THERE ARE NO OBLIGATIONS THAT I KNOW OF IN CONNECTION WITH THE REFUNDING IN ANY MANNER OF THIS $86,000,000 THAT IS TO BE SPENT FOR THE BUILDING OF THE FT. PECK DAM.

WE NEXT COME TO THE GRAND COULEE PROJECT. THIS PROJECT ON THE COLUMBIA RIVER IS CONTEMPLATED TO ULTIMATELY PROVIDE FOR A HIGH DAM AND DIVERSION BY PUMPING OF PORTIONS OF THE FLOW OF THE COLUMBIA RIVER AND RECLAMATION BY IRRIGATION OF A LARGE AREA (ABOUT ONE MILLION ACRES) IN THE EASTERN PORTION OF THE STATE OF WASHINGTON. THE ESTIMATED COST OF THE HIGH DAM AND POWER PLANT IS $168,000,000, ABOUT THE SAME AMOUNT AS BOULDER DAM, INCLUDING THE ALL-AMERICAN CANAL AND $25,000,000 FOR LEVEES ALONG THE COLORADO. IRRIGATION FEATURES WHICH MAY ULTIMATELY BE INCLUDED WOULD COST AN ADDITIONAL $208,000,000. THE PRESENT INITIAL APPROPRIATION OR

ALLOCATION OF FUNDS IS $68,000,000. THIS IS TO BE USED IN BUILDING THE LOWER PORTIONS OF THE DAM WHICH WILL GENERATE POWER, WHICH POWER IS TO GO INTO THE MARKETS OF THE PACIFIC NORTHWEST. THIS PROJECT WHICH WAS ORIGINALLY SPONSORED BY THE COLUMBIA BASIN COMMISSION, IS BEING CONSTRUCTED UNDER THE SUPERVISION OF THE U.S. RECLAMATION SERVICE AS PART OF THE PUBLIC WORKS PROGRAM.

I HAVE RECENTLY BEEN IN THE NORTHWEST AND HAVE ASKED A NUMBER OF ENGINEERS WHAT ENGINEERING BOARD HAD SPONSORED THIS ENTERPRISE. I HAVE BEEN UNABLE TO LEARN OF ANY ENGINEERS WHO HAVE RECOMMENDED THE BUILDING OF THE GRAND COULEE AS A SOUND ECONOMIC PROPOSITION. SO FAR AS I KNOW, THERE IS AT PRESENT NO PROVISION FOR THE RETURN OF MONEY THAT IS NOW BEING EXPENDED BY THE GOVERNMENT OTHER THAN THROUGH THE FUTURE SALE OF POWER, WHICH IS TO BE DELIVERED TO A MARKET THAT IS ALREADY SUPPLIED WITH TWICE AS MUCH ENERGY AS IT NOW CAN CONSUME. THERE ARE NO CONTRACTS TO BUY THIS POWER.

PASSING DOWN THE COLUMBIA RIVER WE COME NEXT TO THE BONNEVILLE PROJECT. THE BONNEVILLE DAM AND LOCKS WILL AID NAVIGATION ON THE COLUMBIA AND DEVELOP ADDITIONAL POWER. IT IS BEING BUILT UNDER THE DIRECTION OF THE ARMY ENGINEERS TO DISTRIBUTE ITS POWER IN THE SAME GENERAL MARKET AS THE GRAND COULEE. WE HAVE THE INTERESTING SITUATION OF THE DEPARTMENT OF THE INTERIOR GOING INTO THE POWER BUSINESS AT GRAND COULEE AND THE WAR DEPARTMENT IN THE POWER BUSINESS AT BONNEVILLE AND FT. PECK. I DO NOT KNOW OF ANY CONTRACTS THAT ARE IN EXISTENCE FOR THE PURCHASE OF THIS POWER OR GUARANTEE OF THE RETURN TO THE GOVERNMENT OF THIS OUTLAY, BUT I UNDERSTAND THERE IS SOME COOPERATIVE AGREEMENT BETWEEN THE STATE OF WASHINGTON AND THE FEDERAL GOVERNMENT. UNFORTUNATELY I CANNOT GIVE THE DETAILS OF THIS PHASE.

SO WE SEE IN INSPECTING THE GREAT CIRCLE FROM THE MOUTH OF THE MISSISSIPPI TO THE TENNESSEE, THENCE UP THE MISSOURI AND DOWN THE COLUMBIA, PRACTICALLY SURROUNDING OUR SOUTHWESTERN COUNTRY, WE HAVE A FEDERAL POLICY OF BUILDING GREAT PUBLIC WORKS PROJECTS AT NATIONAL EXPENSE AND WITHOUT CONTRACTS TO REPAY THE COSTS. THE ENGINEERING DESIGN AND CONSTRUCTION OF ALL THESE WORKS HAVE GOOD ENGINEERING ADMINISTRATION.

LET US NEXT SEE WHAT WE FIND WHEN WE INSPECT CALIFORNIA PROJECTS.

OUR FIRST SOUTHWESTERN PROJECT AUTHORIZED BY DIRECT CONGRESSIONAL APPROPRIATION IN 1928 IS THE BUILDING OF THE HOOVER DAM. THIS CALLS FOR AN EXPENDITURE OF $165,000,000, THE BENEFITS TO CONSIST OF STORAGE OF FLOOD FLOWS OF THE COLORADO, GENERATION OF POWER, THE EXPENDITURE OF $25,000,000 IN THE BUILDING OF LEVEES ALONG THE COLORADO AND THE ALL-AMERICAN CANAL, WHICH WILL SERVE THE IMPERIAL VALLEY AND PUT SOME 400,000 ACRES ADDITIONAL OF DESERT LAND UNDER WATER.

BEFORE THIS ENTERPRISE WOULD BE AUTHORIZED BY THE INTERIOR DEPARTMENT, IT WAS REQUIRED THAT FIRM CONTRACTS SHOULD BE ENTERED INTO BY THE BENEFICIARIES WHO ARE TO USE THE POWER AND STORAGE RIGHTS. THE CONTRACTING PARTIES WERE COMPOSED OF THE METROPOLITAN WATER DISTRICT, THE CITIES OF LOS ANGELES, PASADENA, BURBANK, AND GLENDALE, SOUTHERN CALIFORNIA EDISON COMPANY, LOS ANGELES GAS AND ELECTRIC COMPANY, SOUTHERN SIERRAS POWER COMPANY, AND I BELIEVE THE SAN DIEGO GAS AND ELECTRIC COMPANY. THE REVENUE HAD TO BE SUFFICIENT TO PROVIDE FOR THE RETURN OF THE $25,000,000 PROVIDED FOR THE BUILDING OF THE LEVEES ALONG THE RIVER AS WELL AS ALL THE OTHER EXPENDITURES. THE IMPERIAL IRRIGATION DISTRICT ASSUMES THE COST OF BUILDING THE ALL-AMERICAN CANAL. THERE ALSO HAD TO BE CONTRACTS FOR CERTAIN STORAGE RIGHTS IN THE HOOVER RESERVOIR.

THESE COMBINED PAYMENTS HAD TO BE SECURED BY FORMAL CONTRACTS PROVIDING FOR THE RETURN OF ALL THE EXPENDITURES MADE BY THE GOVERNMENT, BOTH IN INTEREST AND BOND REDEMPTION. THIS IS A FEDERAL LOAN AT A RATE HIGHER THAN MONEY COSTS THE FEDERAL GOVERNMENT.

THE NEXT CONSIDERED CALIFORNIA PROJECT IS THE METROPOLITAN WATER DISTRICT. IT IS TO BRING IN A NECESSARY WATER SUPPLY FROM THE COLORADO RIVER TO SOUTHERN CALIFORNIA. ITS CONSTRUCTION WAS PROVIDED FOR BY A $220,000,000 BOND ISSUE SECURED BY THE PROPERTY IN ELEVEN SOUTHERN CALIFORNIA CITIES. UP TO THE PRESENT TIME THE RECONSTRUCTION FINANCE CORPORATION HAS PURCHASED $55,000,000 OF THESE BONDS.

AS I REMEMBER, I STAND FOR CORRECTION AS TO THE FRACTION OF A CENT, THESE BONDS ARE SOLD TO THE RECONSTRUCTION FINANCE CORPORATION ON A 5 PER CENT BASIS. A SUBSEQUENT ARRANGEMENT HAS BEEN MADE BY WHICH ONLY 4 PER CENT IS TO BE PAID TO THE RECONSTRUCTION FINANCE CORPORATION AS LONG AS THE R.F.C. HOLDS THOSE BONDS, BUT IN CASE THEY SELL THE BONDS THEY GO BACK TO A 5 PER CENT BASIS.

THERE HAS ALSO BEEN PROVIDED FOR THIS WORK SOMETHING LIKE $2,000,000 BY THE P.W.A. WHICH CARRIED A GRANT OF 30 PER CENT OF THE $2,000,000 TO THIS PROJECT OF THE METROPOLITAN WATER DISTRICT.

THE ESSENTIAL FACT THAT I WANT YOU TO NOTICE IS THAT HERE AGAIN WE HAVE THE FEDERAL GOVERNMENT BUYING BONDS SECURED BY THIRTEEN SOUTHERN CALIFORNIA CITIES FOR THE INTEREST ON

THIS MONEY AND THE RETURN BY AMORTIZING PROCEDURE OF THE ORIGINAL FUNDS THAT ARE LOANED.

NOW WE COME TO THE NEXT PROJECT – THAT IS THE EAST BAY BRIDGE AT SAN FRANCISCO. THERE $62,000,000 WAS ALLOCATED TO A BRIDGE DISTRICT FOR THE CONSTRUCTION OF THIS BRIDGE FROM THE CITY OF OAKLAND TO THE CITY OF SAN FRANCISCO. A DISTRICT WAS ORGANIZED THAT GIVES SECURITY FOR THIS LOAN. THERE WAS A CONTRACT ON THE PART OF THIS BRIDGE DISTRICT TO RETURN ALL THE MONEY THAT HAS BEEN ADVANCED BY THE FEDERAL GOVERNMENT FOR THE CONSTRUCTION OF THAT PROJECT. THE DEPARTMENT WAS NOT SATISFIED WITH THAT SECURITY AND REQUIRED THE CALIFORNIA STATE HIGHWAY COMMISSION TO GUARANTEE THE PAYMENT OF INTEREST AND PRINCIPAL ON THOSE OBLIGATIONS BEFORE THE GOVERNMENT WOULD AGREE THAT THE MONEY WOULD BE ADVANCED.

ANOTHER PROJECT FOR WHICH WE HAVE HAD "FEDERAL AID" IS THE BUILDING OF A POWER LINE FROM THE CITY OF LOS ANGELES TO HOOVER DAM. THAT IS 270 MILES LONG AND ITS COST WITH APPURTENANT WORKS WILL BE $23,000,000. THE FUNDS WERE ADVANCED AS A LOAN, REPAYMENT OF WHICH IS TO BE MADE BY THE POWER BUREAU AT 4½ PER CENT INTEREST. THE DEPARTMENT HAS TO GUARANTEE THE RETURN OF THAT MONEY WITH INTEREST TO THE FEDERAL GOVERNMENT.

SO YOU SEE AS FAR AS THIS QUESTION OF FINANCIAL POLICY IS CONCERNED, THERE IS AN INTERESTING DIFFERENCE BETWEEN THE BENEFITS AS RECEIVED BY ALL THESE OTHER NON-CALIFORNIA GREAT PROJECTS FROM PORTLAND ON THE COLUMBIA TO NEW ORLEANS AT THE MOUTH OF THE MISSISSIPPI, AND TOWARDS OUR OWN. IN VIEW OF THE ANNOUNCEMENT MADE BY SECRETARY ICKES THAT THIS GREAT CONSTRUCTION PROGRAM IS TO CONTINUE, ONE CAN'T HELP BUT WONDER WHERE WE ARE GOING TO GET OFF ON THAT PROGRAM; WHETHER WE ARE GOING TO BE GIVEN THE SAME TREATMENT IN THE WAY OF DIRECT GRANTS THAT HAS BEEN ADVANCED TO OTHERS, OR WHETHER WE WILL HAVE TO PUT UP OUR BONDS AND ENTER INTO SOME CONTRACT TO PAY FOR SUCH WORKS.

IN THE CASE OF FT. PECK DAM, THERE IS LITTLE NAVIGATION ON THE UPPER MISSOURI RIVER. IN THE CASE OF THE BONNEVILLE AND GRAND COULEE, THERE IS NO GREAT DEMAND FOR POWER, BUT WHEN WE COME TO THE CENTRAL VALLEY PROJECT OF CALIFORNIA, WHERE WE DO HAVE ACUTE NECESSITY THAT REQUIRES ATTENTION, IT WOULD SEEM WE OUGHT TO BE GIVEN SOME CONSIDERATION IN LINE, FOR INSTANCE, WITH THE GRAND COULEE OR FT. PECK PROJECTS. THE GREAT CENTRAL VALLEY OF CALIFORNIA INCLUDES THE SACRAMENTO AND SAN JOAQUIN VALLEYS AND THE PROJECT AS PROPOSED INCLUDES THE BUILDING OF A DAM AT KENNETT, THE BRINGING OF SACRAMENTO WATER THROUGH THE RIVER CHANNELS OF THE SACRAMENTO AND THE PUMPING OF IT UP THE SAN JOAQUIN VALLEY. ANOTHER DAM WOULD BE BUILT ON THE SAN JOAQUIN RIVER IN ITS MOUNTAIN SECTION AND DIVERSIONS FROM IT MADE TO TULARE, KINGS, AND KERN COUNTIES.

THE STATE OF CALIFORNIA HAS ASKED THAT THE FEDERAL GOVERNMENT ADVANCE MONEY FOR THE BUILDING OF THIS PROJECT BASED ON THE CONTRIBUTION OF THE FEDERAL GOVERNMENT OF $12,000,000 ON ACCOUNT OF THE BENEFIT OF NAVIGATION, A 30 PER CENT GRANT AMOUNTING TO $37,000,000 IN ACCORDANCE WITH THE GENERAL PROGRAM ADOPTED BY THE P.W.A. ON OTHER PROJECTS AND A LOAN OF THE REST OF THE COST, AMOUNTING TO $116,000,000 TO BE REPAID BY THE BENEFICIARIES IN CALIFORNIA. IT IS PROPOSED BY CALIFORNIA THAT THIS MONEY IS NOT TO BE ADVANCED UNTIL CONTRACTS ARE PROVIDED FOR THE PURCHASE OF POWER AND WATER. IT IS ESTIMATED THAT 50 PER CENT OF THE REVENUES WILL BE DERIVED FROM THE SALE OF POWER AND 50 PER CENT FROM THE SALE OF WATER. THERE IS IN THE SOUTHERN PART OF THE SAN JOAQUIN VALLEY 400,000 ACRES OF LAND, WHERE IRRIGATION SUPPLIES COME FROM GROUND WATER AND WHERE THE WATER LEVELS ARE FALLING AND THE SUPPLY INSUFFICIENT. IT IS ESTIMATED BY THE STATE ENGINEER THAT UNLESS ADDITIONAL WATER IS BROUGHT INTO THIS COUNTRY THAT 200,000 ACRES WILL HAVE TO GO BACK TO DESERT. THIS LAND IS OCCUPIED BY TOWNS, FARMS, AND HOMES. THREE HUNDRED THOUSAND PEOPLE NOW LIVE ON THESE LANDS. THE VALUE OF PROPERTY INVOLVED IS $50,000,000 AND THE ANNUAL CROP IS VALUED AT $20,000,000. WHEN CALIFORNIA OFFERS THIS PROGRAM OF SECURITY FOR THE RETURN OF 70 PER CENT OF THE COST OF THAT MONEY AND SETS UP THE NECESSITY OF RELIEF OF HOMES ALREADY ESTABLISHED AND TOWNS ALREADY BUILT, SHE IS GIVEN THE COLD SHOULDER AND TOLD THAT CALIFORNIA HAS ALREADY HAD ITS SHARE.

IT IS SUBMITTED THAT THIS MERITORIOUS PROJECT SHOULD BE ADOPTED AS A NATIONAL ENTERPRISE AS HAS BEEN DONE WITH OTHERS THAT ARE FAR LESS IMPORTANT FIRST MENTIONED ABOVE, AND THAT THE FARMERS OF THIS REGION SHOULD NOT BE REQUIRED TO BEAR THE HEAVIER PART OF THE BURDEN OF ITS COST.

MR. CHAIRMAN, YOU LIMITED ME TO THIRTY MINUTES AND I HAVE TALKED THE LIMIT OF THAT TIME. I THINK OF A WISE SAYING OF ONE OF OUR FELLOW TOWNSMEN, MR. WILL ROGERS, WHOSE DEFINITION OF A STATESMAN IS A MAN WHO CAN GET AN APPROPRIATION FOR A DAM WHETHER THERE IS ANY PLACE TO PUT IT OR NOT. I THINK THAT HAS APPLICATION TO A NUMBER OF THESE VARIOUS SITUATIONS REFERRED TO FIRST ABOVE.

IT HAS BEEN A MATTER OF INTEREST TO ME TO WATCH THE DEVELOPMENT OF THESE PUBLIC EXPENDITURES, THE BUILDING OF THESE PROJECTS, AND CONFESS I HAVE BEEN SHOCKED TO FIND GREAT SUMS HAVE BEEN HANDED OUT TO AREAS THAT REALLY HAVEN'T ANY ACTUAL NECESSITY FOR THEM, WHILE IN CALIFORNIA WE HAVE BEEN REQUIRED TO GIVE SECURITY AND PAY INTEREST RATES HIGHER THAN MONEY COSTS THE GOVERNMENT AND THEN WE ARE TOLD WE ARE GREEDY AND TO GO BACK AND SIT DOWN.

STENOGRAPHIC REPORT BY THE SECRETARY, A. L. GRAM
REMARKS REVISED BY J. B. LIPPINCOTT.

A. "numerous letters" - has written two.

B. "the cry has been raised that such line extensions would violate the policy of the Board to extend its distributing system only to points at or near the municipal boundary of each of the original thirteen District cities."

May 24 letter, "I do not intend to oppose these expenditures but want to outline to you some aspects of the subjects as I see them."

June 4 letter, "First of all I want to say again that I am not opposed to the construction of these connections to our original member cities. The amount of money involved is comparatively small and the arguments advanced by Director Butler and others are reasonable and fair. My only desire is that the connections be built as economically as possible and that we define the District's policy covering these and similar cases in the future,"etc.

C. "It is therefore plain that this Board has, under its 1931 policy, ample power and right to make the line extensions that have been recommended."

No question of right to build connections. Board can change any time it wants. Director Rossetti was not a member of Board when policy drafted. "such other points as the Directors may determine" refers to lines passing through a city additional outlets would be allowed.

D. "there is no justice, there is no consistency in making such demands upon these five particular cities."

The Chairman voted against the Palos Verdes Reservoir and Distribution system as recommended by staff on the grounds that in his opinion "the necessity of some of the proposed expenditures was questionable in the present circumstances." Also voted against line across City of Los Angeles at District expense.

E. "I, for one, have no fear of the evils that might beset the District if later boards see fit to question and alter the policies of this Board."

Director Rossetti is right when he says the Board is not bound by hard and fast rules of policy but nevertheless when a rule has been adopted and all understand what that rule is, and joins the District with the rules in effect, they should not be thrown

overboard capriciously and the District assume large additional expenses and obligation. I repeat that I am in favor of these particular connections but want the policy reaffirmed with regard to the future.

F. "He says that his experience on the Los Angeles Water and Power Commission qualifies him 'to appreciate the difficulties which may arise if we permit the widespread use of our lines for the benefit of the local communities'".

Director Rossetti chooses to make fun at my reference to my experience with the Department and to put a rather absurd and far-fetched interpretation upon them. I never intimated that anyone intends or trys to encroach on the systems belonging to the City and the District, not even Alhambra or Downey. I do insist, however, that my experience as a Water Commissioner does qualify me to appreciate the problems and expense of operating and maintaining all the features of a retail water distributing system.

And as for his statement that we have no reason to fear difficulties in the five cities mentioned, he apparently overlooks the fact that we are proceeding with these extensions with the very definite understanding that in the case of one city and probably two service connections from the District's lines to individual industries are definitely contemplated right now. What I want to know is who is going to buy the expensive meters, read them, repair and replace them from time to time, and who is going to maintain these lines?

G. Again Director Rossetti deliberately misinterprets my position when he says "we ought to ascertain quite definitely whether

these five District cities will immediately begin to use aqueduct water before we go to the expense of extending the distribution mains to such points as will make possible their use of aqueduct water."

What I actually said was, "That the construction of each of these extensions be deferred until the local community states definitely that it intends to use Colorado River Water and officially indicates the amount which it proposes to use. In the light of statements which have been made to the present time, some of these connections may remain inactive for ten years or more. If such is the case then we should at least save the carrying charges until the connection is actually needed."

I think you will agree this is going out of the way to make an argument. There is considerable difference in debating a proposal to agree to build the lines when needed and making the cities sign on the dotted line. And what I say with respect to these cities I have always contended with respect to all the others in the District including Los Angeles.

He knows, or should know, that the Aqueduct was built to protect the people of Southern California and their wealth against the perpetual menace of drought and whether a little or a lot of water is used for several years is beside the point. We must be prepared to deliver the water to 2,000,000 when they need it. We can't start to build an Aqueduct when the drought has struck but we can always build distribution lines on short notice and this has always been my stand as most of the Directors will recall.

H. I have stated that I am favorable to the construction of these lines and I think the communications we have received and the statements that Directors Cook and Butler and others have made since this discussion started have given me assurance that we are economically justified in building these

lines at the present time. Again so far as my vote is concerned I am not favorable to a general policy to such constructions in the case of future annexations.

I. Director Rossetti quotes me correctly when he says "that the District ought to complete all construction work at the earliest possible moment and thereby be able to reduce its engineering and construction force."

That is exactly what I believe. However, he goes on to admit that we must take care of San Marino at some future date. Why could not the same procedure he suggested for San Marino apply to other communities? The plans and specifications could lie in our files until needed. Then if the engineering staff we must have for operating purposes is not adequate to do the simple job of calling for bids and inspecting the work, a few engineers could be employed temporarily or use be made of the many competent engineering firms of our community.

I pointed out,it will be recalled, that it was purely a question of economy to the District and whichever method is justified by the facts should prevail.

J. Director Rossetti refers to"a tendency in some quarters, to claim credit for performing certain great services for the people of the District, when, in fact, such services have been rendered largely through the District's extraordinarily capable engineering organization."

The fact remains that the points raised in the Board meeting have resulted in a reduction of the estimated cost from $285,000 to $185,000. If the work had been authorized when first presented the higher figure would have been

expended. He says that "Our engineers have not told us that this latter plan is adequate, or that it is desirable, or that, in the long run, it will be economical."

Nevertheless, our General Manager and Chief Engineer in his letter to the Water Problems Committee presenting the plan for connections costing $185,000 ends with these words, "I recommend that the construction of these connections be authorized."

Furthermore, later the Assistant Chief Engineer proposed an increase only in the case of Burbank.

I think the insinuation of Director Rossetti that the Board by its diligence has not resulted in large savings to the District is entirely unfair. I need only mention the work the Engineering Committee did on the cement contracts. Also I might point out that had the recommendation advocated in some quarters been followed, the District would now be constructing a line through Orange County at a cost of some $9,000,000, primarily for the benefit of one large land owner.

K. In his attack on my suggestion that we investigate whether economies to the District might be effected by constructing the lines by W.P.A., he becomes rather sentimental and . By his own admission our past experience with W.P.A. saved the District hundreds of thousands of dollars and proved entirely satisfactory. As far as placing any builder in the local communities, as he contends, that is ridiculous and was never intended.

He says I suggest that we "Let them have the W.P.A. for their connections, if any, and let them struggle along with that outfit the best way they can."

On the contrary, the work would be done and supervised by the District and the local communities, instead of being treated like stepchildren, would have the benefit of the employment of their relief labor. Our Assistant Chief Engineer has stated that the reliefer would only contribute in the most part to ditch digging and backfilling. I don't think these communities are so fastidious that they want only highclass ditch diggers. He also intimates that our engineers could not supervise the work as they have so efficiently in the past so as to obtain the same qualify of work. Personally, I don't think this is so. I am for economies for the District. I don't favor the W.P.A. more than anyone else on this Board, but I do believe we should find out how much of a saving could be effected before we go ahead. In the cases of Long Beach and Santa Ana, from what our Assistant Chief Engineer has said, W. P.A. is out of the question. To the other three cities I think their local experience might prove a decided advantage.

L. I think Director Rossetti has raised some very interesting questions when he discusses remarks which have been made regarding the share Los Angeles is paying. Personally, I think Los Angeles did the proper thing in making it possible for the entire coastal plain to have a water supply. Of all the cities on the plain she could best have put off the construction of the Aqueduct for many years. I don't believe she should be penalized for taking the broad gauge point of view. As to the contention that Los Angeles did not

have legal authority to build the Aqueduct, that is beating around the bush. Neither did the present District have authority when we started out. Director Rossetti also assumes that Los Angeles would have built the Aqueduct as it is now constructed. For considerably less than 72% of the present cost she could have built an Aqueduct that would have been adequate for the Metropolitan area until sufficient wealth had accumulated to build duplicate facilities. There is a great deal more that could be said on this subject but I choose not to expand the debate beyond the points raised at the present time.

M. Director Rossetti opens up the question of the treatment plant and objects to my statements in this regard. At the time the plant was authorized I filed a minority report and since then have made statements regard it and on one occasion referred briefly to my views in a written memorandum. Director Rossetti is correct when he says that the Chairman of this Board is "purely and simply a parlimentary officer." No chairman, however, in a democratic country endowed with free speech is precluded from expressing his opinions. I have endeavored to limit my participation in the arguments of the Board but I refuse to be muzzled on points that conflict with my convictions either with respect to the interests of the District or the community I represent. I would like to suggest that Director Rossetti follow his own preaching. He has assured the privilege to himself of making the great majority of the motions on all questions presented

since he has been a Director. Also I would like to call his attention to the fact that when a great majority of this Board voted to appoint a committee to review our staff organization to determine what economies could be effected and what changes will be necessary to change from a construction to an operating organization he fought the proposal and then threatened all manner of things if the committee report did not meet with his views and wishes.

In his dramatic conclusion he again chooses to ignore that we are not debating whether the lines shall be built at the District expense as needed by the communities, which is generally conceded, but the economies which might be effected and the long range policies involved.

I regret the necessity of making these statements in self defense and I wish to state emphatically that no personalities are mislead in so far as I am concerned whatever.

Statement by
W. P. Whitsett,
Chairman, Board of Directors,
The Metropolitan Water District
of Southern California

It has been suggested, I understand, that I speak to you on the subject of "Water for the New California". In approaching this vital and basic subject I feel strongly that we need to extend our view to a broader zone than that which includes only the geographical area of California. At the very outset we come to the realization that the subject with which we must be concerned is the problem of water and the Pacific area of the United States.

So far as this Pacific area of the United States is concerned, there are two kinds of water that have shaped - and will continue to an even greater degree to shape - its destiny. First of all, there is the limitless mass of salt water upon which this portion of America fronts. It is the Pacific Ocean. And as we look out across the tremendous reaches of this ocean we see those portions of the earth's surface wherein the fortunes of this western land will be worked out for good or for ill in the years ahead. We see this destiny of ours in the potentials of trade and development in South America, in Alaska, in the countless islands of the Pacific, in Australia, and in the enormous population and land masses of Pacific Asia.

It now appears, at long last, that the American people are awakening to a rapidly broadening realization that in this Pacific arena - to a very large extent - there lies the answer to the fate of these United States - and, indeed, the whole world. To meet this challenge of the world of today

and tomorrow, the people of America, as though guided by the hand of Providence, have turned their eyes toward this far western territory. By the thousands, by the hundreds of thousands, yes, by the millions, people from every part of the United States are moving into this western region. Consciously or unconsciously they are preparing themselves to be the writers of a new chapter in the story of our civilization.

For reasons profound and compelling a large part of this westward migration continues to head toward that portion of the Pacific area that is called California. There is not the time - here and now - to discuss in detail the reasons for this trend in westward migration. But the fact is that such a tremendous population move continues to be under way. And that fact confronts us with the need to give increasing consideration to the second kind of water with which this area must be concerned. It is fresh water - water required to sustain life and support growth in this territory.

In the northern part of California - and to a lesser degree in the central portion of this state - Nature provided the land with water in a fairly generous measure. In these sections of the state the water problem, in a large degree, is that of controlling, conserving and distributing the water at hand. But in the southern part of California, Nature failed to provide the water needed to support the population and economic structure that even now exist there, to say nothing of the great quantities that will be required to sustain the people and the economy of the future. It is a startling fact that only one per cent of the state's water, exclusive of the Colorado River, is tributary to that portion

of the state south of the Tehachapi Pass, and yet this portion of California represents one-half of the business, industrial and land values of the entire state, and within this same area there live more than one-half of all the people of the state. To support the people who now reside in Southern California, to support agriculture, and the business, industrial and home values that now exist in Southern California, it has been necessary for its people to reach far out to distant rivers and import through giant aqueducts the water so vitally needed.

First, there was the Owens River aqueduct, financed and built by the city of Los Angeles. This water supply system called for an initial investment of $24,500,000, and it represents today an investment of more than $90,000,000. Its cost in all particulars has been borne - and will continue to be borne - by the people of Los Angeles - the people it serves.

But the Owens River aqueduct, built to serve only those people within the corporate limits of Los Angeles, could not also meet the water needs of nearby communities. And, furthermore, more than twenty years ago the people even of Los Angeles came to realize that additional water would be required by <u>them</u> to meet their needs in recurring periods of drought, and to satisfy the requirements of an increasing population and expanding industry. Thus it came to pass that there was organized in 1928 The Metropolitan Water District of Southern California. This water district now includes 22 incorporated cities and several local water districts. Within the boundaries of the Metropolitan Water

District are about 3,000,000 people, and it has a total assessed valuation of $2,700,000,000. The Metropolitan Water District has built and is paying in full for the Colorado River aqueduct. This is the largest and longest single water supply line in the United States. Its initial cost was approximately $190,000,000. Ultimately it will be capable of delivering to the Coastal Plain of Southern California one billion gallons of water a day. That is enough water to meet the needs of about 7,500,000 persons.

This aqueduct was built very largely during the depression years of the thirties, when Government aid was being extended to all manner of projects regardless of their ultimate economic value. But the Colorado River aqueduct was not a Government aid project. It was built from the proceeds of a bond issue of $220,000,000 voted by the people of the Metropolitan Water District.

The cost of retiring the aqueduct bonds, with interest, and the cost of operating and maintaining the aqueduct system is being borne solely and entirely by the people of the Metropolitan Water District - the people served by the aqueduct. And that is the way it should be. But that is not all. Far from receiving any gratuities from the Government, the people of the Metropolitan Water District have paid the Government handsome profits for its participation in the aqueduct project. These profits have been paid the Government in two ways.

First, the District sold its aqueduct bonds to the Reconstruction Finance Corporation. Later the R.F.C. sold these same bonds to the public, and as a result realized a profit of about $14,000,000 on the deal.

Second, the District asked the cooperation of the

Government in the building of Parker Dam below the Intake of the Colorado River aqueduct. Construction of this dam cost approximately $7,300,000, and the Government through its Public Works Administration supplied $600,000, or about 8 per cent of the total cost. The Government retained the perpetual right to 50 per cent of all the hydroelectric power available from Parker Dam. That amounts to 50,000 kilowatts, and from this energy the Government is now realizing a net of $300,000 a year. That will amount to a profit of $15,000,000 over a 50-year amortization period. That was a very smart investment by the Government. Need I say that the people of the United States would be in better shape today if all of the P.W.A. spending had been one-tenth as profitable?

Keystone of Colorado River development is Boulder Dam. And here, once more, we find a project that is being paid for, in full, by the people who are today actually utilizing its water and power resources. The law authorizing the building of Boulder Dam by the Government contained the provision that its building could not be set under way until the Secretary of the Interior held firm contracts for the sale of water and power sufficient to repay the cost of the dam and power plant, with interest, within a period of fifty years. Repayment of $25,000,000 of the cost of the dam was allocated to flood control and will be repaid out of revenues later. The Metropolitan Water District joined with other public and private power agencies in Southern California in signing the necessary contracts with the Government. In fact, the District contracted to pay for, whether used or not, 36 per cent of the firm power produced at Boulder Dam. Ultimately this large block of power will be required to operate aqueduct pumping plants.

In the early years of aqueduct operation only a small fraction of the power is needed by the Metropolitan Water District. And in the early years of Boulder Dam operation the Metropolitan Water District paid over to the Government the amount of about $4,500,000 for Boulder energy which it did not use and which was not sold to any other agency. Thus the Metropolitan Water District has been one of the principal underwriters of the Boulder Dam project, and has paid a premium of $4,500,000 to the Government, in addition to the money it has paid for power which it actually has needed and has used. The people of the Metropolitan Water District paid that $4,500,000 premium to the Federal Government for unused power because they had entered into a contract with the Government pledging themselves to pay the money. It is to be hoped that the officers of the Federal Government will be equally honest and faithful in meeting in full their contracted pledge to make certain specified Colorado River water and power deliveries to the people of Southern California.

I have referred to the major steps that have been taken in Southern California to obtain from far distant sources the water that is essential to the life of this part of our country's Pacific area. So far as the future is concerned, the life and continuing economic stability of this western territory is dependent entirely upon the available resources of the Colorado River. In Northern and Central California there also exists today and there will always exist the basic task of developing and maintaining adequate water supplies for agriculture, industry and homes. The sources of water may be different, but the task and the problem of providing adequate supplies of water for the

established civilization of today and of tomorrow - these are tasks and these are problems that are common to all sections of California.

They are tasks and problems that can successfully be performed and can properly be solved only if the people of California are wise enough to act as a unit. For these water problems have not yet been solved.

For example, in Southern California tremendous investments have been made, costly works have been built, to utilize a fair share of the water and power resources of the Colorado River. And the delivery of this water and power is pledged by the Government in contracts of long standing. But today we find that these Colorado River water rights of communities situated in California - these water rights are being threatened by a host of new water diversion projects now being promoted by various interests, including agents of the Federal Government. The truth is that the United States Bureau of Reclamation has issued a report listing 134 potential new Colorado River projects, and in this report the officers of the Government admit that if these proposed projects were to be constructed they would call for the diversion and use of 25 per cent more water than is actually available in the river, taking into account the rights of projects now in operation. The Bureau of Reclamation takes the position that all of the listed projects cannot be developed, and calls upon the states of the Colorado River basin to screen and select projects and agree upon division of the available water. The competition for projects creates a grave danger of over development. The United States Bureau of

Reclamation estimates that the cost of these 134 proposed new projects will amount to $3,460,000,000.

This danger of overdraft on the water of the Colorado River was sorely aggravated by the action of the United States Senate in ratifying the Mexican water treaty as it was submitted. This treaty guarantees to Mexico for all time 1,500,000 acre feet of Colorado River water annually. California communities opposed the ratification of this treaty because it gives to Mexico an unjustifiable quantity of Colorado River water. But Government agents and certain other areas in the Colorado River basin supported the treaty. And it is from these same sources that there now comes the request for the development of many of these 134 proposed new projects - projects which, if they are authorized and built, will disastrously overdraw the remaining available water of the river.

Colorado River control and development thus far has been made possible almost completely by financial investments and commitments of communities and firms which happen to be in Southern California. These Southern California investments and commitments in Colorado River development now amount to $533,000,000. That is the bill which Southern California communities are obligated to pay for feasible, practicable and operating water and power works on the Colorado River. Our people are willing and ready to meet this heavy obligation because the projects for which these investments have been made are feasible and necessary. The projects include Boulder Dam and power plant, the All American Canal in the Imperial and Coachella Valleys, the Colorado River Aqueduct and Boulder power transmission systems. And it is, I

submit, unreasonable and grossly unfair to have these established self-sustaining projects subjected to water and power losses in order to set up other new projects whose feasibility in most cases have not been and cannot be demonstrated.

The people in the Colorado River basin who have pioneered the gigantic task of controlling and developing the resources of the river for the service of mankind - these people have supported and carried forward river projects that have paid their own way. The people of the United States have a right to insist that this policy be continued with regard to further Colorado River projects. When a new project for Colorado River water diversion is proposed the taxpayers of the United States have a right to insist that it meet the test of feasibility. They have a right to insist that it prove its ability to pay its own way.

The days of boondoggling in costly uneconomic public works ought now to have passed. There should be no place in the water hungry communities of Western America for billion dollar white elephants disguised as water projects.

There is need - there is grave need - in the communities of the Colorado River basin and in the South Pacific area for every gallon of water within economic reach of this Southwest region. And there is not enough water available to justify its dissipation on projects where the use of the water will not be of sufficient economic value to permit the full repayment of the project cost.

Here in California we have in all sections of the state

a common and an urgent interest in the development and protection of our respective water rights. It is of vital interest to each section of the state that the legitimate rights of all parts of the state be safeguarded and properly advanced. There are no reasonable grounds for a division of our people on the basic subject of water. There are no reasonable grounds for the division of our legilators in Sacramento and in Washington in so far as the water rights of California are concerned.

California is a part of the Pacific area of the United States. If the United States is to realize its destiny at home and in the broad reaches of the Pacific, we must retain here in this territory the basic water rights we have thus far secured - and for which we are paying in full.

Our future security and our fate as an essential sector of America's western front can and will be measured in terms of water.

5,000 words by Carl Hunt

M E N A N D M A C H I N E S
ON THE COLORADO RIVER AQUEDUCT

* * *

Some years ago a gaunt sun-tanned man paused for breath upon a slippery mountain trail eleven thousand feet above the Colorado Desert. Another turn or two and he would stand at last upon the crest of San Gorgonio.

The lone traveler surveyed the hazards before him and grinned at the precipice below. He was a young man, about thirty-five. Mountaineering was not his specialty. But it can be said of him that he was a man endowed with considerable strength of purpose and alertness of mind and body, the kind of equipment that could command his heart and nerve and sinew to serve him almost in any emergency. So he used that equipment, his jaw set, and made the grade.

A panorama of rare beauty met his sweeping gaze. The sight enthralled him. He found himself standing upon a wide granite flat which had been polished by millions of years of rain and snow, and as he took in the whole bewildering expanse of the scene, a strange emotion filtered into his soul. Never in his life had he so realized the littleness of man, never so strongly felt the majesty of Nature. And for a brief moment his eyes closed and his lips moved. He was just that kind of a man.

Presently he looked up. In the far distance beyond the purple ranges of the Sierras dozed the immensity of the still

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ocean, pale golden under the noonday sun. Just this side of it, deftly woven into the tapestry of earth, were cities gleaming like green-garlanded sprays of white blossoms amongst the prismatic hues of the picture. That smear of drab ocher on the right was Death Valley. At his feet glimmered the gigantic bas-relief of the Colorado Desert with its thousand contrasts of color and light, its sand dunes that looked like small wind-swept seas of burnished silver, its oases of date palms swaying mistily above the thin veil of the dancing heat. Fascinated he looked upon the towering ranges of San Bernardino and San Jacinto.

San Jacinto. The man chuckled to himself as he surveyed the contours of the great mountain. Coming through the flourishing city of Banning he had visited the St. Boniface Indian School up in the foothills. There, among the descendants of the Mission Indians of California, he had come upon an old squaw who was visiting her great-grandchild, a girl of twelve or so. The aged lady was sitting in the cooling shade of the little church and conversing with the girl in the dialect of the Cocopa tribe. At least that was what Father Justin had called the language. Greatly interested, the white man had asked her some questions, using the young girl as an interpreter. One of the answers had stuck in his mind. He was to remember it years afterward. "That mountain", the aged red woman had said, pointing to Mt. San Jacinto, "has a big lake inside of its belly, with fishes in it thirty feet long."

It was the recollection of that quaint superstition that had called up the chuckle of amusement in the throat of the man on San Gorgonio. But as his gaze returned to the horizon in the

east, the line between his keen blue eyes deepened in thought. There was water in that river over there, plenty of water that could be used for the redemption of this wasteland. Water, the primordial need of man. The phrase hammered in his brain. His thoughts ran from the white-and-green spots in the distance, spots that were young thriving cities made by water, to a point directly east where the Colorado River turned and twisted between barren embankments.

Yes, William Mulholland was right. The great engineer, whose foresight and indefatigable energy had brought the Owens River to Los Angeles, had said that the day would come when more water would be needed, yes, water from the mighty Colorado, if the growth and prosperity of the Southland were to continue. And so believed the man on the mountaintop. "Bill" Mulholland was his friend. Both knew that Los Angeles and the surrounding communities now were growing and expanding beyond even the most sanguine predictions and that soon all of the available Owens River water supply would be too little to meet the needs of the fast growing population. Both men were empire builders. They realized the danger of the situation. They knew that much of the annual rainfall and the runoff from the mountain snow-crops was going to waste, that the great artesian basin formed by a thousand centuries of Nature's activity and measuring 315 square miles in area had practically disappeared and that much of the water which had been pumped from the depths below sea level along 162 square miles of coastal land had been ruined by the penetration of salt water from the ocean.

Conscious of a great and ever growing menace, the amateur mountaineer continued to watch that flashing ribbon of water in the east, the moving road of the Colorado, as some call it. He looked until his eyes became fixed, like those of a seer. Yes, Bill Mulholland was right. The dream of that great engineer, now passed to the beyond, took practical shape in the mind of this man, another daydreamer, perhaps, but really one of those idealists who seem to be gifted with the ability and power to carry their dreams to triumphant realization. What came to him at that moment was a vision of the very intensity of Nature translated into an even intensity of work and enterprise, a cool interpretation of all this rhythm and color around him in terms of a tangible potency. He saw and created a vision of his own, a bold project of high finance, of millions of dollars to be mobilized in the service of mankind. He saw thousands of men boring gigantic tunnels through granite mountains, men and machines conquering the desert and harnessing that mighty stream so that life would come to a growing empire of ten million people - life, contentment and prosperity.

On January 2nd, this year, two thousand feet underground, four hundred pounds of dynamite knocked out five feet of granite and united two sections of the world's longest and biggest tunnel.

That tunnel, part of the East Coachella tube, is one of thirty-seven tunnels that will carry an inexhaustible water supply from the Colorado River through 220 miles of mountains and arid desert lands to thirteen Southern California communities. The

holing through operation, on this epochal occasion in the history of the Colorado River Aqueduct, was attended by the men principally responsible for the amazing swiftness and the unquestioned efficiency with which this world's masterpiece in hydraulic engineering had been carried on to its present midway of complete realization.

Mr. Jesse Jones, chairman of the Reconstruction Finance Corporation, was there. He made a brief address which was broadcast over the national network right from the spot. The boom of that dynamite blast and the crashing of those granite boulders were heard all over this continent. It was a dramatic moment, the gripping tensity of which was felt by workers and officials alike. Mr. Jones said,

"Mr. Whitsett, Mr. Weymouth and Fellow Americans:

"The Colorado River Aqueduct, which will carry water in great abundance from the Colorado River at Parker Dam in Arizona to Los Angeles and twelve other cities in Southern California, a distance of 220 miles under mountains, over valleys and through deserts, is one of the projects made possible by R.F.C. financing. The total cost will be $220,000,000, sixty millions of which has already been paid out. The balance will be at the approximate rate of $5,000,000 a month. Most of this money goes for labor--- the steel has been apportioned to all sections where steel is milled, Pennsylvania, Illinois, Michigan, Ohio, etc. The cement comes largely from California -- copper from Utah, Arizona, and Nevada -- aluminum from Arkansas and North Carolina in the raw state, manufactured in Pennsylvania and Ohio -- lumber, Oregon,

Washington and California. These materials are required in large quantities, and while it is a California project the labor and material is distributed over many states. For every dollar invested here by the R.F.C. we get a bond that is a direct obligation of The Metropolitan Water District of Southern California, embracing all of Los Angeles and the twelve other cities in the District. In addition to revenue from the sale of water, the District has full ad-velorem taxing power to meet the interest and amortization on the bonds.

"The R.F.C. will make this great project possible---insuring for all an ample water supply for this---the garden and playground of America, without losing a dime of Government money.

"It is a loan and not a grant, we get bonds that can be sold without loss. These are a great people in California, they do things in a big way---this is the most costly and perhaps the greatest water supply ever undertaken.

"R.F.C. also loaned $23,000,000 for the construction of a power line to carry electric power from Boulder Dam to Los Angeles. This loan was paid in full last week. You, Mr. Whitsett, and your associates have been businesslike in all your dealings with the R.F.C., and it has been a pleasure to cooperate with and to assist you in these great undertakings, the benefits of which will inure to this and the generations to follow. I thank you."

The two men promimently addressed by Mr. Jones were Mr. W. P. Whitsett, once a mountain daydreamer and now chairman

of the board of directors of The Metropolitan Water District of Southern California; and Mr. F. E. Weymouth, general manager and chief engineer of the Colorado River Aqueduct. Weymouth, since the passing last year of William Mulholland, is perhaps one of the greatest hydraulic engineers and organizers in the world today. Men like John Hays Hammond and famed engineers from foreign countries who have visited the aqueduct have been frankly amazed at the truly titanic proportions of the now half-way finished aqueduct. From every side have come felicitations of the heartiest nature to Mr. Weymouth as the man who is building this wonder aqueduct. A brief survey of this man's brilliant career may not be malappropriate.

Weymouth was born at Medford, Maine, June 2, 1874, graduating in civil engineering with the class of 1896, University of Maine. He worked three years on the Metropolitan Water District of Massachusetts on sewer and water works construction, then was employed by the Isthmian Canal Commission in Nicaragua, Central America, and at Washington, D. C. For a year he was resident engineer, Guayaquil & Quito Railway Co., in Equador, South America. During the next 22 years Weymouth was with the U. S. Reclamation Service in every capacity, from project engineer to chief of construction and chief engineer supervising all work in the west except legal, with direct charge of investigations and reports on the Boulder Canyon project.

Chairman Whitsett, the man who scaled Mt. San Gorgonio and dreamed the aqueduct in terms of money that would make it realizable, is one of the most enthusiastic believers in the future

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of Southern California. This writer knew him twenty years ago. At that time Whitsett was troubled with T.B., but paid no attention to his ailment. He was too busy planning things. Now, as we met again after years of travel on my part, the man seemed to be walking on air. He looked as breezy and full of life as some of the ducks he used to shoot at.

"We're doing it, old man", he shouted with a dislocating slap on my sholder. "The greatest engineers of America, meaning the world, are building the greatest aqueduct in history, ancient or modern. The future of Southern California is assured. We've drilled 82 miles of tunnel through granite mountains and desert sands and have only ten more to go to insure a million acre-feet of water per year to the people of Los Angeles and surrounding cities, thirteen of them, so far. The pyramids of Egypt, the Chinese Wall, and the aqueducts of Rome and Ancient Greece all rolled into one can't hold a candle to this piece of work."

This may sound, and perhaps is, a little extravagant, just a little; but in the mouth of W. P. Whitsett it merely reflected the unbounded natural enthusiasm of the man. It must have been that sort of thing that sold the idea of the aqueduct to the voters of thirteen cities and then kept things going under his dynamic chairmanship. Whatever it was, the man felt that he had again made the grade, that he was on that narrow ledge again within reaching distance of the summit of San Gorgonio and that, with a few more hard turns to negotiate along the crumbling trail, without ever looking back at the hardships of the upward journey,

he was sure to win. The way to conquer is to grin at death. Such men have made America.

"Run up and take a look," he urged. "Men from all over the world have been here to see it. They can't believe it's real. Pipes sixteen feet in diameter, immense siphons, great covered conduits and open canals across the desert. It will be 242 miles in length, or a total of 392 miles with the distributing system. We are now employing 8,000 men and will put on 4,000 more within a couple of months.

"There on the wall are the tables showing the classification of materials and supplies and of expenditures inside and outside of California. Here are the charts showing graphically the states which are benefiting by the purchase of these materials and products.

"We are spending $105,583,000 outside of California. Of this sum $990,000 goes to Idaho and Oregon for timbers, poles, and manufactured timber products; $2,150,000 goes to Wyoming for copper wire and cable or aluminum; $5,300,000 goes to Wisconsin for motors, transformers, condensers, regulators, meters, switches, circuit breakers and other electrical machinery; $13,800,000 goes into Illinois locomotives, dragline shovels, rock drills, trucks, automobiles, tractors, concrete machinery, etc.; $3,990,000 goes to Pittsburg for large pumping machinery, valves, control apparatus, etc.; $10,593,000 to Kentucky for pipe, rail, reinforcing bar, structural shapes, plates, etc.; $3,380,000 goes into Texas for powder; and $9,750,000 is divided up between 45 states for transportation. Practically all of the cement used on the job is a

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home product of California.

"The steel products alone, including California in a total of $14,770,000, are shared by eight states: California, with $4,177,000; New York, with $430,950; Pennsylvania, with $3,761,000; Ohio, with $3,262,400; Indiana, with $1,048,000; Illinois, with $837,750; Utah, with $401,500; and others in the amount of $851,400.

"And these states get their raw material, such as iron ore, iron and steel scrap, coke limestone, etc., out of seventeen other states, this reliable data being based upon the calculations of the U. S. Department of Commerce. This may give you a rough idea of what's going on. Go up and take a look. Don J. Kinsey, who is assistant to Mr. Weymouth and a human encyclopedia on aqueduct affairs, will see that you are taken care of."

To convey an idea of the bigness of the job and of the thoroughness with which it was planned, it may be mentioned that before the actual construction of the Colorado River Aqueduct was begun, under the direction of General Manager and Chief Engineer F. E. Weymouth, the following work had to be done:

Construction of 150 miles of surfaced highways, 428 miles of high voltage electric transmission lines, 180 miles of five, six, and eight-inch water supply mains, and 285 miles of telephone lines. All of these had to be finished and placed in operation before the actual work of tunnel driving was begun.

Studies of the Colorado River Aqueduct problem were started by the Water Bureau of the City of Los Angeles as far back as 1923, several years before the formation of the Metropolitan Water District.

As the investigation proceeded, other cities became interested in the project, notably Anaheim, Beverly Hills, Burbank, Compton, Fullerton, Glendale, Long Beach, Pasadena, San Marino, Santa Ana, Santa Monica, and Torrance. The first investigators found much of the desert area unsurveyed. The topography made it difficult to definitely decide on the best location for the aqueduct. Accordingly, a total area of 60,000 square miles was surveyed. Many maps from miscellaneous sources were assembled and brought to a uniform scale so that general topography was made available for all of the southern portion of California and portions of Nevada and Arizona. Many possible routes were suggested. One proposal contemplated a diversion at Glen Canyon, Utah, with an aqueduct more than 800 miles long and serving not only Southern California, but also the large areas of Utah and Nevada. At the other extreme was a proposal to divert from the Laguna Salada in Mexico with an aqueduct running up the coast by way of San Diego.

At field headquarters at Banning I met Assistant General Manager J. L. Burkholder.

"This is the biggest yet," he said, "and will be a credit to the whole nation. Old tunnel driving records have been smashed from one end of the job to the other. Only recently we drove 1,111 feet of hard-rock heading from one face at Copper Basin No. 2 in thirty days. All of the work is done in comparative

safety. Our safety engineer, T. W. Osgood, will tell you that, incredible as it may seem, while the aqueduct has been made the speediest tunneling job in history, it also has been made the safest. Safety here is more than a slogan. It is an actual reality. The entire organization, from commission heads to drill runner, chucktender and force-account crews, has been permeated with the safety idea. Safety is taught and then practiced.

"Over a stretch of 242 miles of California desert these tunnel forces are proving that construction hazards can be overcome and that high construction speeds can be obtained without sacrifice of human life and limb. They are giving a convincing proof that the American art of tunneling, by means of modern machinery and tools and thoroughly studied procedures, has reached the top."

It was Resident Engineer R. E. McGonagle who conducted me to my initiation as a "tunnel stiff" down the 800-foot Potrero shaft into San Jacinto tunnel. Before we drove out of Banning toward our destination, I was made to wear tall rubber boots, a heavy rubber coat and a "hard-boiled" hat. Mr. McGonagle said there was a little excessive moisture in the tunnel. Before we got into the steel cage, called "skip", which was to plunge us into the grumbling bowels of San Jacinto, however, I had to sign a printed slip "fully realizing the dangers involved and personally assuming the risks of any injury sustained, regardless of the cause or nature of such injury."

"She's a tough baby," said Mr. McGonagle, "but we have her well in hand." All of which was terribly reassuring.

Down below I found myself in the devil's own smithy, or so it seemed. Men in rubber armors were waiting to go up. The gloom was punctured by glaring electric bulbs and from a long horizontal black hole came the staccato detonations of jackhammers and diamond drills. From somewhere came the noise of spluttering water. In a repair shop carved out of one of the walls, grimy men, naked to the waist, were sharpening tools. We had two tunnel headings to pick from, a dry one and a wet. I was in favor of the dry one, but Mr. McGonagle thought I would be more impressed by moisture. So on we went toward the "tough baby". For about a quarter of a mile I followed my guide and his electric torch along a narrow-gauge track hidden under one foot of water. Once I slipped and sat down. A rather cold sitzbath. At last, beyond a bend, Mr. McGonagle paused and pointed.

"There she is, mister. We'll be there in about ten minutes. She's now running about 20,000 gallons a minute."

"Oh, yes?" I puffed, mutinously.

"Too bad you lost your footing," he added, "the very spot where you are just now, exactly 1700 feet underground, millions of years ago was the actual surface of the earth. Why, only the other day they found a slab of sandstone right over there that showed tracks of what must have been the ancestor of the camel."

"Must have been a seafaring camel," I started to argue while struggling to my feet. That water surely had all the nipping

qualities of the Pleistocene period. But Mr. McGonagle was serious about those tracks.

"They are forty million years old," he roared above the din; "believe it or not! Those animals walked around right where we are standing now - - "

"Yes," I agreed, "and floated down to us upon the stream of time."

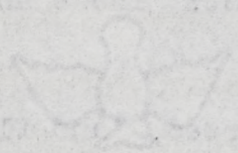
Mr. McGonagle grunted, "We broke into a crushed zone at the time of shooting the round," he explained, professionally. "That crushed zone crossed the tunnel line at a sharp angle, you see, and the feeler hole that we drilled to test the ground ahead hadn't shown a drop of water. Kind o' unexpected it was."

"Any danger of a cave-in?" I queried, casually.

"Not a chance, mister," said Mr. McGonagle. "Anyhow, it would take fifteen hours before the water came up to your chin. Our new pumps are the marvel of the age."

The men at the heading, five or six of them, worked like demons, with drills and picks and shovels, under the direction of a giant safety engineer. Like submarine monsters, they seemed to be in their natural element. Under the headlights of an electric motor the splashing waters of the inner San Jacinto had a pearly opaline look, as if suddenly bleached after millions of years of blackness.

I could not help thinking of the thirty-foot fish in the Indian legend. What if they were real live descendants of that mythical Hydra, with nine heads each, any one of which might suddenly come out of that big water spout in the right tunnel wall



and grab one of the unsuspecting workers? And pull him up into its watery lair to be ignominiously devoured, rubber and all? I shuddered at the thought. But then, there was Hercules, the safety engineer.

The men were sweating and steaming in their heavy rubber outfits. Yet, they seemed satisfied. They had been doing this for a year or more, and if anything ever went wrong - the hospital unit was right near the top of the shaft.

The District was prepared for any emergency. This was explained by J. L. Burkholder later that day. Mr. Burkholder is one of the big hydraulic engineers of the country and his name is known in both Americas where great engineering jobs have been done under his direction.

"It was possible for us," he said, "to complete the special underground pumping stations at Potrero and Cabazon shafts just in time to handle the large amount of water encountered in the San Jacinto tunnel. With the completion of these great pumps, excavation from that day on was pushed forward without fear of flooding.

"When the District took over the San Jacinto job from the contractor, the equipment in use at the time consisted of several deep-well type turbine pumps either suspended from the top of each shaft or set up within the tunnel where they were subject to flooding. Our engineers recommended abandoning this method and using four-stage horizontal centrifugal pumps located in sealed water-tight chambers at tunnel level near the bottom of each shaft.

"This was done. Each pump, as you saw them, operates automatically, so that in case of a flood great enough to fill either shaft, Potrero or Cabazon, the pumping would continue at full capacity without interruption."

Traveling in a fast car up the aqueduct trail in the company of Pistol Pete was an experience in itself. Pete is the young and upstanding chief of the aqueduct's police force. His right name is Stringfellow. Red agents who try to undermine the morale of the aqueduct forces have no use for him. And that is mutual, said Pete as we stopped at the "Jackhammer" in Indio for a beer.

"When I find these Bolsheviks sticking their heads together," he added, "I just step on them as I would on a nest of sidewinders. I have a little way of scratching my shirt near my left armpit and that tells them I mean business."

"Killed a good many, I suppose?"

"Don't know, sir. I'm afraid I'm pretty bad at figures."

The "Jackhammer Club" turned out to be a big dance hall with a floor flanked on three sides by partitioned booths and faced by a massive bar on the fourth; barnlike with open rafters and lanterns for atmosphere, gold rush effect, dice, liquor, and dancing ladies. But the miners out for a Saturday night's jamboree, Pistol Pete explained, were not gold miners who would slap a sack of dust on the bar and invite the house at the point of shooting irons to drink their health. They were just plain tunnel stiffs digging holes in

the desert, gophers earning just so much a day and altogether too much absorbed in suds and a little friendly game to have any ambitions left for anything else. Poor pickings for dancing ladies.

"This town is pretty clean now," Pete stated, officially; "but, of course, it's pretty hard to stop some things that are not in open violation of the law. Human nature, I mean. Cactus Kate and her flock are still around somewhere. But Date Palm Daisy is in the cooler. She fell for a camp cook and married him. But when she found out from the way he fried steaks that he must have been a cobbler by trade she just plugged him and that was that."

Rice, another desert town flung along the two sides of the highway, seemed sound asleep as we dashed through. It consisted of some twenty or thirty ramshackle buildings, all of them amusement places, and boasted of a new post office which lent it prestige. Pete thought it wouldn't be any too healthy for strangers to nose around some of these places during business hours, meaning from 10 p.m. to 8 a.m. when the stratosphere is the limit.

Quite another picture was offered as we hit the country around the Colorado River. Strung along its shores were small communities of tent and trailer dwellers, workers on the aqueduct who had brought their families and whose improvised homes had been supplied with water and electricity by the District. A jolly lot they were, happy and healthy looking. Some of these workers were young engineers who had been glad to take on jobs as "cat skinners" (caterpillar tractor drivers), or "puddlers"(men who work the concrete into the cracks behind the forms), or "powder monkeys" (men

who handle the powder) or just ordinary "tunnel stiffs" (tunnel workers). Many of them were fine young athletes and college students; they had their tennis courts, their desert football and baseball teams, and quite a number of them, the division engineers said, could act as "brass collars" (resident engineers) almost at a moment's notice.

I am afraid it would take up too much of this valuable space to name each one of the engineering features seen on this great battlefront of American enterprise or do justice to the courage and grim perseverence of these thousands of hard-working men on the job. Their spirit of competition in safety precautions, their eagerness to hole through speedily and with the least time-loss accidents was inspiring indeed. Contracting firms from many parts of the country and the engineering staffs of the District were working hand in hand toward an outstanding victory of civilization over wastelands. W. E. Whittier, veteran chief of Division 2, pointed with pride to the results obtained on his job and extended a most genial hospitality to all visitors. So did the other division engineers down the line, John Stearns of Division 3, B. C. Leadbetter, of Division 4, and the dean of them all, J. B. Bond, who is responsible for the work of the District in Divisions 5 and 6.

John Stearns, who was one of the earliest men on the job and who, with Mrs. Stearns and two beautiful daughters (now attending the university at Berkeley) planted shade trees and flowers and a thousand varieties of cactus around the dozen or so buildings of his desert headquarters, has demonstrated the miracle of soil

and water. The place is a little paradise of verdure and color in the midst of desolation. Going over the job with him we came upon a strange-looking piece of machinery. At a distance it looked like one of those huge palaeozoic monsters of which one sees the reconstructed scientific pictures in museums, a big fat body, a long neck and small head, all teeth and no brain.

But this new dinosaur evidently had a brain. Upon closer inspection the thing turned out to be a dragline shovel. This curious machine was reeling to and fro in the most perplexing manner. It had two "feet", one on each side of what might have been a railway club-car with a glassed-in observation platform. Each steel shoe, as John Stearns called it, was 25 feet long and 4 feet wide. Every time the big car tilted this way or that, up came one shoe and then the other for a traction progress of six feet or more. The thing actually walked. The great bucket at the end of the boom was biting off big chunks of rock and sand from the side of an elevation and turning leisurely to spit it all, 27,000 pounds of dirt to each spit, over a dump some distance away. The "brain" of the monster, meaning the operator within the glassed-in cage, was handling the pedals and brakes that did it all, three hoists and discharges per minute. The machine was doing the work, quickly and efficiently, of three daily shifts of 350 experienced shovelers or more and better work than a thousand men could do in 24 hours. This may sound like a great triumph of mechanized industry over hand labor. But it really is not. That machine, through the ingenuity of its work, paves and smooths the way for quick progress in aqueduct construction. It

is the source from which springs the wide range of employment given by manufacturers all over the nation to men and women in the various branches of industry related to the job of aqueduct building. Instead of destroying labor, it is the humble opinion of this writer that it creates thousands of jobs where there were only few or none at all.

The construction front on the main Colorado River Aqueduct is divided into six sections, each of which, except Divisions 5 and 6, are contract jobs operating under the direct supervision of District engineers. These divisions in turn are subdivided into schedules, 32 in all, according to the nature of the work to be done, canals, conduits, siphons or tunneling, each schedule again having its own executive home personnel while the workers must be qualified residents of the District. Take the Walsh Construction Co., of Davenport, Iowa, for instance, who holds a $4,357,780 contract for 9 miles of tunnel at the intake end of the Colorado River. This work is divided into six schedules and includes all the tunnels in the Whipple Mountains in San Bernardino County, 17 to 25 miles northeast of Vidal station on the Santa Fe and 8 to 14 miles northeast of the town of Parker.

I went over this big job, or some of it, with Engineer Herbert E. Cutler, erudite assistant engineer under Division Engineer R. C. Booth. Mr. Cutler has a lovely wife and two desert-born yountsters, and lives in one of the splendid tropical bungalows built by the District for their executive staff. It was he who gave me my first lesson in dry tunnel exploration. I was prepared to like it much better than the one with the ex-

cessive moisture at the other end of the line. Especially since I was to lunch with the crew one mile underground and three miles from the portal. We made the trip on top of a combination powder and dynamite primer car, electrically propelled and coupled to a steam-table lunch car in front of us. I liked the lunch car better than the one we were sitting on. The smell alone was a gastronomic revelation. At least I thought I recognized the aroma of some savory dishes for which some restaurants in the city of New Orleans seem to have the exclusive recipe. It was a familiar though unidentified odor which made me forget the temperamental dynamite sticks and primers I was riding on. That odor puzzled me. I sniffed, audibly, and Mr. Cutler looked at me.

"All granitic," he said, "with considerable matamorphism into gneiss."

I became conscious of the fact that our minds were not running in the same direction. The man was talking about rocks, fundamental rocks of the Whipple Mountain whose intestines we were perforating. Also he pointed out some mysterious wire arrangements along the walls, wires that would blow up the whole works, lunch car, metamorphisms, gneisses and all, if you weren't careful; also he called attention to some white painted flatish lockers standing in niches and containing stretchers. We drove three miles to the brilliantly lighted heading where 20 men were waiting, some of them bare to their belts, all looking avidly at the lunch car. In a few seconds half of a long flatcar was transformed into a buffet with everything on it except caviar and vodka. There was

SUCCESS BOND

a thick puree of beans, goulash, stacks of bread and butter, mashed potatoes and fried potatoes, rice, salads, chicken croquettes and lamb stew cooked in curry, the thing I had been smelling every second of that three-mile journey. There were mountains of pie to be tunneled through and washed down with floods of milk and coffee. Noting my surprise at finding such a feast in so unlikely a place, Mr. Cutler, who is a student of napoleonic history as well as a top-notch engineer, paraphrased:

"L'armée perce les montagnes sur son ventre", meaning that if you want your men to build you a nice aqueduct, you must feed them well. And this was indeed a fine repast, with fresh desert air coming right down to you through blowpipes and all the latest aqueduct jokes served on the side. It made you feel like wanting to be one of this merry gang.

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SUCCESS BOND

MEMORANDUM

W. P. Whitsett June 11, 1935

It is wonderful for me to be back in Southern California again. While I visited many beautiful and desirable places, I must say that none of them has the appeal to me of our own little patch of mountains and desert by the sea. Everywhere I have gone I have found people looking towards Southern California. Some of them were interested in a business sense, others from a purely social viewpoint, considering the prospect as a permanent home in the near or distant future.

I have found everywhere I have gone the consciousness of the water problem which Southern California has faced in the past. Possibly this was rendered more acute by the intense suffering in the Middle West during this past year. Even in Florida, which ordinarily has an adequate and abundant rainfall, I found that they were very much alive to water problems on account of a six months' drought through which they had ~~been through~~ just passed.

At Jacksonville, Florida, I dropped into a motion picture theater quite casually and was amazed to find the news reel showing scenes of the construction work on the Colorado River Aqueduct. It was gratifying to me to learn of the extent to which people were conscious of what we are doing here to solve our water problems and were generally familiar with the magnitude and progress of the Colorado River Aqueduct.

While at Washington we received a commitment from the Reconstruction Finance Corporation for an additional $36,000,000, which will carry on the work for almost another year. I personally had the pleasure and privilege of again talking to Mr. Jessie Jones and it was from him personally that we received the commitment. During our conversation he referred to the report which the engineers of the Reconstruction Finance Corporation had made on the entire project, including management, progress, administration, and efficiency in all departments. We knew that the men were investigating the Aqueduct and had provided them over quite a period with everything to facilitate their investigation. I have reason to believe that the report rendered was highly complimentary to the District and in fact the advancement of an additional loan of $36,000,000 is evidence in itself of the character of the report.

During the hot summer months the District work will ease off a bid. Because of the high temperatures on the desert some of the work will have to be curtailed. However, in the fall the organization will expand and employment will reach a peak in the neighborhood of probably 8 or 10 thousand men.

Memo to Mr Whitsett;

Attached is a draft of the script on the radio broadcast to be given over a National and Canadian hook-up by the Mutual Broadcasting System - between 1;00 and 2;00 P. M. Saturday, June 26.

This will give it release between 5;00 and 6;00 o'clock in the East.

This copy will need to be cut quite a little to fit into our allotted time. I do not know that we will be able to get over all the information we might desire, because we must conform to the requirements of the radio chain people. I do believe that such a statement from you as is set up will be helpful - and will help the program.

Attached also are proof sheets of a forthcoming special issue of the L. A. Chamber's magazine, BUSINESS. The article

was prepared by Mr Collins, Editor of the magasine from material secured from the District. There is to be other material on the District also in the same issue, I understand.

Don J. Kinsey

BROADCAST FROM THE SAN JACINTO TUNNEL OF
SOUTHERN CALIFORNIA'S METROPOLITAN WATER DISTRICT AQUEDUCT

- - -

ANNOUNCER
at K H J in Los Angeles

And now - in just a moment - we are going to visit the biggest construction job in America. We are going to take you down into the famous San Jacinto tunnel on the Colorado River Aqueduct being built by the Metropolitan Water District of Southern California. This aqueduct is a giant water supply system being built to deliver a thousand million gallons of water a day to Los Angeles and twelve other nearby cities which comprise the Metropolitan Water District of Southern California. To grasp an idea of what this gigantic aqueduct project really is let us try to visualize a great peace time army - an army of engineers and workmen stretched out along a battle line 392 miles in length - all the way across the state of California. A 392-mile line of construction operations along which thousands of men are engaged in building the greatest domestic water supply system in the history of the world. Of the hundreds of difficult construction features on the Metropolitan Aqueduct - the famous San Jacinto tunnel is by all odds the most spectacular and the most hazardous. Arrangements have been made by the Mutual Broadcasting System to give you a glimpse of this section of the big job.

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It is the first time that such a radio broadcast ever has been attempted. And now we switch you to the San Jacinto tunnel on the Metropolitan Water District Aqueduct.

ANNOUNCER FROM SAN JACINTO TUNNEL

(As the announcer comes in we hear the rattle and clatter of a tunnel muck train, the sound of warning calls and other tunnel sounds. These sound effects, in varying volume, continue throughout the broadcast from the tunnel.)

This is John Smith - speaking to you from the San Jacinto tunnel on the Metropolitan Water District Aqueduct in Southern California. This great tunnel is being driven through the heart of the towering San Jacinto mountain - one of the highest mountains in Southern California and located about 90 miles east of Los Angeles. This tunnel is thirteen miles long. It is one of thirty-eight tunnels that make up sections of the gigantic Metropolitan Aqueduct. The driving of this tunnel is recognized to be by far the most difficult -- the most spectacular and the most hazardous job on the entire aqueduct system.
I am standing here against a gray jagged wall of granite that forms one side of this tunnel. A little while ago I was brought down to the tunnel through a perpendicular shaft 800 feet deep. A shaft that had been cut down to the tunnel line from the sloping side of the San Jacinto mountain. When we reached the bottom of the shaft we boarded a tunnel rock train - a train that runs on a narrow gauge railway track and is pulled by a trolley motor very much like the trolley cars we have in our cities.

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It is the first time that such a radio broadcast ever has been attempted. And now we switch you to the San Jacinto tunnel on the Metropolitan Water District Aqueduct.

We came up the tunnel line about a mile and a half to the point where we now are - just a few hundred feet from the working face of this huge bore. The face of broken stubborn granite where a toiling crew of hard rock miners are drilling and blasting their way forward step by step -- foot by foot.

This is an eerie sight -- this huge tube that has been blasted and cut through a treacherous granite formation by the tunnel crews of the Metropolitan Water District. On both sides and over my head are the gray jagged rock walls and roof of the tunnel. It is horseshoe in shape and is 18 feet in diameter. Big enough to serve as a passageway for the largest type of railway locomotive. But this is not a railway tunnel, of course. It is being driven to serve as one section of the gigantic 392-mile-long aqueduct that will deliver water from the Colorado River to the thirteen cities which comprise the Metropolitan Water District of Southern California. The tunnel section where I now stand is in the very heart of the San Jacinto mountain, more than ~~a half mile~~ 1500 feet below the surface. The tunnel is illuminated by hundreds of electric lights strung along the roof and walls - and powerful spot lights are illuminating the working face of the tunnel where a crew of miners are filling a large number of holes with hundreds of sticks of dynamite.

~~Dynamite~~

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~~Dynamite~~

Dynamite which in a few minutes will blast away another section of rock in exactly the shape of the tunnel line already excavated. Not far from me is another crew of men operating a set of powerful drills on another phase of work. The noise of these drills is almost deafening. All about me is the staccato rattle of powerful drills and the rumble and clatter of heavy tunnel trains loaded with broken rock. And all about me is water -- water raining and spurting from a thousand small cracks in the roof and walls of this giant tube. In fact I am standing in water up to my knees. Before I was allowed to come down here to see something of these tunnel driving operations I was taken to the office of the engineering staff and given a special tunnel outfit to wear. This outfit consists of a helmet which looks very much like the steel helmets worn by soldiers in the firing line. The miners call it a "hard boiled hat" and it must be worn at all times in the tunnel to protect the head against falling rock fragments. I am also wearing a heavy waterproof slicker reaching down below my knees, and in addition a pair of high rubber boots that reach to the hips. Every one of the workmen and engineers is wearing exactly the same sort of outfit. And personally I'm mighty glad I am wearing this hard boiled hat and these boots and slicker.

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The San Jacinto tunnel is what the hard rock men call a "wet hole" - and I can testify that it is plenty wet. All this moisture - I am told - comes from water veins and pockets that have been accumulating in the heart of this mountain for thousands of years. ~~In many places these water pockets are under terrific pressure - and when the tunnel crews strike one of these water pockets the water breaks through in tremendous volumes.~~ In order to get this water out of the tunnel - the Metropolitan Water District has installed gigantic batteries of electrically operated pumps which lift the water to the surface of the ground hundreds of feet above. ~~But the presence of such great quantities of water is only one of the reasons why the driving of this particular tunnel is regarded as the most difficult job on the entire Metropolitan Aqueduct system. One of the~~ Another great difficulties ~~arises because of~~ is caused by the treacherous condition of the rock formations in this tunnel. ~~As I look about me now I can see long irregular cracks or seams in the gray granite roof and walls. These are called clay seams and they cause the rock to slip downward and to crush into the tunnel under enormous pressure.~~ To hold this rock in place the tunnel crews in many places have erected a solid wall and roof of huge timbers - sixteen inches thick.

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Even these stout timber supports are sometimes broken and crushed by the weight of the rock - and when this happens they must be replaced and their number increased by skilled crews of hard rock miners. After the work of excavation is completed the entire tunnel is lined with concrete eighteen inches thick. The water is sealed off and all danger of falling rock is thus removed. We passed through such a section of finished tunnel on our way up here where excavation work is still in progress. Confidentially - I would feel just a little bit more at ease if I were back there in that finished section of tunnel right now. But I see no sign of excitement or anxiety among the workers all about me. They are going about their duties in a smooth - methodical manner. With them - it's just another day's work - and do they work! There are no lost motions - no false starts. The construction bosses walk about the job quietly. There is no shouting - no rushing and splashing about. This job is a tough piece of tunnel driving - and the men who are doing the work appear to know exactly what to do and when to do it. These hard rock miners all about me might be described as constituting one of the working battalions of the great army of men engaged in the building of the giant Metropolitan Aqueduct system that extends all the way from the Colorado River to the thirteen cities which comprise the Metropolitan Water District of Southern California.

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The spot where I am now standing is only about 50 feet from the working face of the tunnel. Into this granite barrier fifty or sixty holes have been drilled in the face of the rock - and now - as I said a moment ago - the powdermen are loading these holes with sticks of dynamite. In a few minutes this dynamite will be exploded. Before this explosion takes place everyone down here will be ordered out of the heading and sent far down the tunnel to a safety zone. But it will be a few minutes before they are ready to fire. In the meantime I see a number of engineers and officials of the Metropolitan Water District not far from where I am standing. One of these men is Mr. J. L. Burkholder, the Assistant General Manager of the District. He is right-hand man to Frank E. Weymouth, the General Manager and Chief Engineer of the Metropolitan Water District. I'm going to ask Mr. Burkholder to give us some information on a number of points that I think will be of interest to us all. Oh, Mr. Burkholder - will you come up here near the microphone. First of all - Mr. Burkholder - I wish you would tell me one thing. Is the water which we see coming into this tunnel - is this the water which the aqueduct is going to deliver to the cities of the District?

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. BURKHOLDER — No. This water has nothing to do with the supply of water that is to be brought in by the aqueduct. The amount of water you see here now is only a small fraction of the quantity which the aqueduct will bring in from the Colorado River. The water here is simply one of the difficulties of driving this sort of tunnel. It would not be sufficient to meet the requirements of the aqueduct. After the tunnel has been lined with concrete this inflow of water will be entirely sealed off - just like the perfectly dry section of lined tunnel which we passed through in doming down here.

ANNOUNCER — How much water will the aqueduct deliver to the cities of the Metropolitan Water District?

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ANNOUNCER How much water will the aqueduct deliver to the cities of the Metropolitan Water District?

MR. BURKHOLDER — The aqueduct is being built to deliver approximately 1500 second feet - that means about one thousand million gallons of water every day.

ANNOUNCER — Getting back to the San Jacinto tunnel, again Mr. Burkholder. How much of this job has been completed and how much more remains to be done?

MR. BURKHOLDER — The San Jacinto tunnel line is 13 miles long. About eight and one-half miles have been excavated - and about four and one-half miles remain to be driven. At present, the work of driving this tunnel is being pressed forward from two points. ~~You see the work in progress right here. Now, if you could see through that wall of granite where the powdermen are now loading the drill holes with dynamite - if you could look through that granite formation for a distance of four and a half miles - you would see another crew of aqueduct tunnel workmen driving toward us from the other direction.~~ The other tunnel crew is attacking this tunnel job from what is called the Cabazon Shaft.

ANNOUNCER — When are you going to finish this job, Mr. Burkholder?

MR. BURKHOLDER — The entire aqueduct system is scheduled to be completed and ready to place in operation in 1939.

ANNOUNCER — You speak of the entire aqueduct system. The driving of this San Jacinto tunnel looks like a pretty good sized job all by itself. Are there any other tunnels on the aqueduct like this one?

MR. BURKHOLDER The aqueduct is being built to deliver approximately 1800 second feet - that means about one thousand million gallons of water every day.

ANNOUNCER Getting back to the San Jacinto tunnel, again Mr. Burkholder. How much of this job has been completed and how much more remains to be done?

MR. BURKHOLDER The San Jacinto tunnel line is 13 miles long. About eight and one-half miles have been excavated - and about four and one-half miles remain to be driven. At present, the work of driving this tunnel is being pressed forward from two points. ~~You see the work in progress right here. Now, if you could see through that wall of granite where the powermen are now boring the drill holes with dynamite, you could look through that granite formation for a distance of four and a half miles -- you would see another crew of aqueduct tunnel workers, headed -- toward us from the other direction. The other tunnel crew is attacking this tunnel job from what is called the Cabazon Shaft.~~

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MR. BURKHOLDER — There are thirty-eight separate tunnels on the aqueduct. Their total length is one hundred and eight miles. All of this tunnel work has been completed except the four and one-half miles on this job right here. This is the most difficult tunnel job on the aqueduct.

ANNOUNCER — You say that there are one hundred and eight miles of tunnels on the aqueduct. Now, I understand the entire aqueduct system is 392 miles long. How is the balance of the aqueduct system being constructed?

MR. BURKHOLDER — Well, there are 63 miles of concreted lined canals in the level desert sections on the eastern end of the line. These canals are all completed. Then there are fifty-five miles of covered concrete conduits. And where the aqueduct crosses natural depressions or canyons, it takes the form of U shaped inverted siphons. There are 148 of these inverted siphons totaling 29 miles in length. And finally, there are about one hundred and thirty-four miles of huge concrete and steel pipe lines that will be used to deliver the water to each of the thirteen cities. In addition, this water supply project includes the building of Parker Dam on the Colorado River, the Cajalco Dam and Reservoir - about thirty miles from here - several smaller reservoirs, and five pumping plants that will lift the aqueduct water over intervening mountain barriers.

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These five pumping plants will be operated by electric power delivered from Boulder Dam by means of a power transmission system 237 miles long.

ANNOUNCER — Is that all! And how is this man's sized job being financed, Mr. Burkholder?

MR. BURKHOLDER — The aqueduct is being built from the proceeds of a bond issue of $220,000,000 - a bond issue authorized by the vote of the people of the Metropolitan Water District.

ANNOUNCER — And how is this water to be used? Is it an irrigation project?

MR. BURKHOLDER — No - the Metropolitan Aqueduct is NOT an irrigation project. It is not being built to irrigate any desert lands, ~~and is not being built to irrigate agricultural lands~~. It is being constructed primarily to provide water for domestic and industrial uses in the thirteen cities that now comprise the District and in the cities and areas which may later be granted permission to join the District.

ANNOUNCER — Thank you Mr. Burkholder for this fund of information. ~~I think that I am beginning to understand why this Metropolitan Water District Aqueduct is recognized to be one of the greatest projects of its kind ever undertaken in the history of engineering.~~ And now there is one more man ~~[illegible]~~ down here in the tunnel with us today who I should like to have speak to you briefly.

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ANNOUNCER — Thank you Mr. Burkholder for this fund of information. I think that I am beginning to understand why this Metropolitan Water District Aqueduct is recognized to be one of the greatest projects of its kind ever undertaken in the history of engineering. And now there is one more man ~~climbing~~ down here in the tunnel with us today who I should like to have speak to you briefly.

This man is Mr. W. P. Whitsett, Chairman of the Board of Directors of the Metropolitan Water District. ....But just a minute - until I can see what is going on up at the tunnel heading.

I can see the powdermen driving home the last charges of dynamite. The order has been given to all the workmen to leave the danger zone. They are streaming past the spot where I am standing - headed for the safety zone about 200 yards down the tunnel. The powder car that carried about 500 pounds of high explosives up to the tunnel heading is being rushed back. The engineers directing this job are leaving the tunnel heading that is now packed with enough dynamite to wreck two large office buildings. It looks like its time for me to get out of here too.

While I hurry along up the tunnel to the safety zone I am going to ask Mr. Whitsett to say a few words. No - I am not asking Mr. Whitsett to stay down here with all this dynamite -- fact is, we have set up another microphone in the safety zone 200 yards down the tunnel, and I have asked Mr. Whitsett to go up there and speak to you from that point. I am going to signal Mr. Whitsett to come in now, and I am going to get out of here - and rush down the tunnel to join him - just as fast as I can travel in these big rubber boots.

This man is Mr. W. P. Whitsett, Chairman of the Board of Directors of the Metropolitan Water District.

....But just a minute - until I can see what is going on up at the tunnel heading.

I can see the powderman driving home the last charges of dynamite. The order has been given to all the workmen to leave the danger zone. They are streaming past the spot where I am standing - headed for the safety zone about 500 yards down the tunnel. The powder car that carried about 500 pounds of high explosives up to the tunnel heading is being rushed back. The engineers directing this job are leaving the tunnel heading that is now packed with enough dynamite to wreck two large office buildings. It looks like its time for me to get out of here too.

While I hurry along up the tunnel to the safety zone I am going to ask Mr. Whitsett to say a few words.

No - I am not asking Mr. Whitsett to stay down here with all this dynamite -- fact is, we have set up another microphone in the safety zone 500 yards down the tunnel, and I have asked Mr. Whitsett to go up there and speak to you from that point.

I am going to signal Mr. Whitsett to come in now, and I am going to get out of here - and run down the tunnel to join him - just as fast as I can travel in these big rubber boots.

ADDRESS by W. P. WHITSETT BEFORE THE ELECTRIC CLUB

DECEMBER 9, 1935

Mr. Chairman, members of the Electric Club, and guests:

Many years ago, the completion of the Owens River Aqueduct met the necessities and demonstrated the possibilities of Los Angeles' immediate future growth. But a small, serious-minded, forward-looking, and "stepping" group looked further into the future. They, with that that water warrior, William Mulholland, were convinced that the seating of Empire in the Pacific Southwest depended upon an adequate, dependable, supplemental supply of water, buttressed and reinforced by cheap hydro-electric power for industrial purposes.

The final answer was the Boulder Canyon Dam and the Colorado River Aqueduct which makes possible the doubling of the present water and power resources of the coastal plains of Southern California.

The Colorado River Aqueduct is being built at a cost of $220,000,000. By the expenditure of this money, more than 200,000 persons are being furnished with purchasing power over a period of six years, while the 2,500,000 people on these coastal plains are being made secure in their homes and communities representing seven billions of wealth.

Construction at this time of the Boulder Canyon Project was made possible largely by the Metropolitan Water District contract with the United States Government to take 36% of the firm hydro-electric power to be generated there.

The completion of the Colorado River Aqueduct will mean the protection of our homes and investments, and make available water for growth and development of much of the 1,400,000 acres of fertile semi-arid, habitable land in this rich coastal area, this land having insufficient water.

Consider these figures. Each month, four million dollars are being paid into trade channels by The Metropolitan Water District of Southern California. Under the efficient organization of Frank E. Weymouth, our General Manager and Chief Engineer, 8000 men are employed right now on the aqueduct, and this number will be increased to 12,000 within the next six months. While this army of men is working directly on a necessary constructive and wealth-creating job, they are using equipment and materials from practically every industry, requiring, at the least estimate, 30,000 additional men steadily employed to furnish same.

We are now using approximately one hundred carloads of supplies daily.

We will require seven million barrels of cement - enough to build a 14-foot highway from Los Angeles to New York City - and 248,000 tons of steel requiring over 8,000 thirty-ton cars, or 200 forty-car trains to transport it. Similar figures, staggering to the imagination, represent copper, aluminum, lumber, and other items too numerous to mention.

While plans for the Colorado River Aqueduct were started ten years ago, it seems providential for this community that the actual construction of this largest single piece of public works

in the world should be going on during these years when useful, constructive employment is the challenge for the maintenance of our whole economic structure.

You gentlemen are interested in the development of Southern California. You know that industry follows population. And you know that population will only increase where water - a prime necessity of life - is amply assured. When you watch the building of the Colorado River Aqueduct, you are watching the greatest factor in the building of a new empire, - an Empire to which millions of people, now looking westward, will come to enjoy life as it can only be enjoyed here in the sun-kissed valleys of Southern California.

Statement prepared by W. P. Whitsett for presentation to the Board of Directors on Friday, June 12, 1936.

Gentlemen:

To you who are my friends and associates in directing the affairs of The Metropolitan Water District of Southern California, I feel that I must make myself clear upon two matters about which I have come to very definite conclusions.

Let me review briefly the experience upon which I base the decisions I shall shortly disclose.

For over twenty-five years I have been giving unsparingly of my time to the water problems of Southern California, realizing that their proper solution must be the stabilizer of present values and the forerunner of future progress.

I was appointed to the Los Angeles Board of Water & Power Commissioners in 1924, and, in close cooperation with the late William Mulholland, the late W. B. Mathews, and Senator Del Valle, helped plan and carry the $2,000,000 Bond Issue voted by the City of Los Angeles in 1925 to start the investigation of the feasibility and cost of bringing water from the Colorado River to the Coastal Plains of Southern California.

In 1929, when the Metropolitan Water District was organized, I was selected Chairman of its Board of Directors. Since then, I have devoted my time almost to the exclusion of personal affairs to the District.

With W. B. Mathews and many of you here present, we planned together and carried the $220,000,000 Bond Issue with

which we are now building the Colorado River Aqueduct.

Many of you remember well the bitter controversy that raged when the date was set for voting such a staggering Bond Issue as $220,000,000.

Our opponents claimed that owing to the depression such an amount would bankrupt the City of Los Angeles; that we did not need the water and that the project could not be completed for the $220,000,000 or within the time allotted.

The objection on account of the depression we overcame by showing the vast employment that this project would create; we proved conclusively that water development must precede all other development and be provided in advance of the actual need. The last objection, namely, that the project could not be completed within the sum of money and time allotted, I confidently refuted. My close associations with those sponsoring the Owens River Aqueduct had shown me how successfully such work could be done, and it fell to my lot time and again to declare emphatically that the Colorado River Aqueduct could likewise be completed within the $220,000,000. My conviction was based on the long and successful record of Frank E. Weymouth and his great ability for surrounding himself with capable men - and in the further fact that this Board would always stand solidly back of his rigid integrity in employing the best men, in the letting of all contracts, and in the purchase of all materials from the lowest bidders capable of delivering the desired goods.

My faith in Mr. Weymouth's ability has been justified. As contracts were awarded and materials purchased below estimated

costs, I have taken great pride in pointing out and commenting publicly on the savings reported on various occasions from the office of our General Manager.

Then came the hard going in the San Jacinto Tunnel with the necessarily added costs. But I have never wavered in my belief that Mr. Weymouth could finish the project within scheduled cost, for we had these accumulated savings as a back-log - and I strongly favor whatever measures and costs are necessary to bring the work up to schedule. I rejoice in the fine progress we are now making in the East Potrero Tunnel, as well as in the splendid way in which the actual work on all fronts is being handled.

But recently two vital issues have arisen within the Board which to me are of the gravest concern. First is the question of the District's future financial policy. During my absence, a new Finance Committee was created with broad powers contemplating the taking of our bonds out of the hands of the Reconstruction Finance Corporation and disposing of them to private syndicates; and, second, the proposal of several additions to the project which will increase the cost by many millions of dollars.

Regarding the appointment of this Finance Committee, let me say that I have highest regard for and absolute confidence in every member of this Board. But, as a principle, I object to the delegation of extensive authority to any Committee on matters sufficiently vital as to concern every member of the Board. The fact that each 1% saved on interest means $62,000,000 to the

District during the life of the bonds certainly makes the sale of these bonds a matter of vital concern to every Director - for each one of us is responsible to the City we represent. Even though a Committee must come eventually to report to the Board for confirmation of its acts, once negotiations are completed the Board may be placed in a position where it is morally obligated to sustain its Committee. Certainly the three members appointed on the Finance Committee are exceptionally capable, and I would pay tribute to their outstanding ability and integrity. But any Committee on such a Board as ours should be a reference committee and should only act upon specific and direct instructions from the Board as a whole.

Personally, I feel that the District should continue to finance its project through the Reconstruction Finance Corporation as long as possible or until circumstances are developed which would dictate the wisdom of another arrangement. Since the inauguration of this work I, and other members of this Board, have labored hard and successfully in getting over several loans from the Reconstruction Finance Corporation. The culmination of my desire to get the merits of our project visually before Chairman Jesse Jones was realized on January 2 when, on the proposal I initiated, he spoke over a national hook-up from our Coachella tunnel, praising this gigantic work and expressing his faith in the ability of the District to pay back every dollar to the United States Government as his reason for seeing our project through.

The fact that this project is furnishing employment to

many thousands directly and indirectly throughout the nation would keep it in favor with any program for Recovery. The further fact that the recovery program of the present administration is largely predicated on the lowering of interest rates, would indicate to me that the District would be immeasurably better off with its bonds in the hands of our Government than in the hands of a Syndicate operating for profit. That is my personal opinion. However, I am always willing to abide by and uphold the informed opinion of the majority. The point I am making is that the decision as to who shall hold our bonds should be made only after the careful consideration by the members of this Board, of the findings and recommendations of our very capable Finance Committee. I repeat that I do not approve of giving this Committee broad powers of negotiation and action in this important matter, which was done in my absence and without an opportunity to express my convictions.

The second matter in which I would take issue with some of you is the proposal of additions to this project which would increase the cost by many millions of dollars.

With unanticipated damage suits being filed against the District in large amounts on account of claims being made for lowering water tables and drying up springs; with right-of-way costs mounting and labor and material costs advancing; with possible large expenditures such as most large projects require before satisfactory operation is achieved; we talk about adding a treatment plant, running into several more millions as though it were an absolutely necessary expenditure. Personally, I do

not oppose securing a location for such a plant if there is a safe margin above all costs and capital obligations assumed by the District under the $220,000,000 voted by the citizens for the completion of this project. But I would oppose increasing the tax load by the $6,000,000 involved in the Morris Dam in order to build this treatment plant now.

I believe that much of our Colorado River water in the first stage will be used on garden acres and small ranches where treated water will be more costly and not more beneficial. Some communities may not want treated water at all. Others desiring it may have it by treating it themselves.

It is also proposed to build mains in to the San Diego City reservoir at a cost of several more millions of dollars to the District. While I am in favor of building into Orange County a conduit of sufficient size to supply such parts of Orange County as may join the District before the distributing mains are built, I think we would be setting a dangerous precedent by building into San Diego at the sole cost of the District. If we do this, there will be numerous districts formed, each clamoring for admission with water mains to be built at our expense. Where will this money come from? Are we going to turn down nearby communities later on because our funds have been exhausted in carrying water to more distant points?

Let me make it clear that I am in favor of San Diego becoming an integral part of the District. On account of her water right and the extra carrying capacity which has resulted from the efficiency in the construction of the Aqueduct, San Diego

would be a most logical and valuable addition to the District. You all know that I have worked most consistently to that end; but I feel that San Diego City should contribute a very substantial amount toward the construction of an aqueduct to Hodges Reservoir.

When the San Fernando Valley applied to the City of Los Angeles for Owens Valley Aqueduct water, William Mulholland insisted that we vote a Bond Issue to install our own distributing system and pay a large portion of the cost of the main 6-foot steel trunk line which passed through the Valley on its way to Los Angeles. For this purpose Bond Issues amounting to $2,996,000 were voted by the annexed territory.

Further, I feel that the City of Los Angeles should be paid the amount owed by the District and that it should come out of or be deducted from the $220,000,000 Bond Issue, and that the obligation in connection with the Morris Dam should be dealt with likewise.

I want to be understood as being opposed to adding anything not absolutely necessary to our original plans which will increase the cost of this project to where we cannot make good on our pledges to the people. Namely, that this first unit would be completed and put into successful operation capable of delivering 750 second feet of water at a cost not to exceed $220,000,000.

This to me is a matter of keeping faith with the citizens who accepted our statements, based on estimates of our engineering department, and who look to this Board to see that those promises are fulfilled.

I have gone into these matters at considerable length in order that I may not be misunderstood.

I have arranged my affairs in such a way that I might give unsparingly of my time to continue as your Chairman during the construction period of this project, and I shall be happy to continue to do so as long as we can agree, as we have in the past, on fundamental policies.

The two issues upon which I have herein expressed my opinion are of deep concern to me, and I have placed them frankly before you for consideration during the coming week. Unless most of us can agree on the principles involved, I shall not wish to continue my service feeling out of step with my Board. I ask to have this statement spread upon the Minutes with the request for a resolution next week which will allow me to know definitely how the majority of you feel on these two issues. Also that a copy of this statement be immediately mailed to each of the Directors.

Gentlemen, I have never been a quitter, and I am not seeking an excuse to quit now; but in bringing these policies before you for action it is my hope that I can continue to serve as your Chairman without violating my convictions or my conception of responsibility.

Together we have worked with great personal sacrifice that our communities might profit by our service. Because I believe in you and know that harmonious thought is basic for successful action, I submit this statement and shall await your decision at our next Meeting.

W. P. Whitsett, Chairman

REMARKS BY W. P. WHITSETT
AT THE THIRTY-SECOND ANNUAL STATE CONVENTION
OF THE CALIFORNIA REAL ESTATE ASSOCIATION
OCTOBER 8, 1936

THE COLORADO RIVER AQUEDUCT and Real Estate.

Colorado River water will begin to flow to the cities and areas in the District by January 1, 1939. The project is at present fifty percent completed and $ have been expended. Less than six miles of tunnel remain to be drilled on the main line. Work has begun on all the pumping plants and the turbines and motors are now being manufactured in the East. The power lines to bring the electricity from Boulder Dam to the power plants are well along. In a few words, here is how the Aqueduct will operate.

Crystal-clear water from the great lake above Boulder Dam will be released either through the generators or the needle valves and flow down the channel of Colorado River 150 miles to Parker Dam. (Insert impressions of Lake Mead on recent trip.)

From the Parker Reservoir just above the town of Parker in Arizona, the water will be pumped in succession through five lifts, a total of 1,340 feet. By the time it reaches the Cajalco Reservoir fifteen miles south of Riverside, the water will have traveled 241 miles through various types of canals, conduits, tunnels, and siphons. It will have passed through three reservoirs and across two mountain ranges.

To give you an idea of the size of the principle conduits, I will state that they are eighteen feet in diameter, which is sufficiently large to accommodate the largest type of locomotive with space to spare. The amount of water to be conveyed is 1,500 second feet which in one year is approximately equivalent to one foot of water over 1,100,000 acres, or about equal to the amount now being used on the Coastal Plain of Southern California. In other words, the Aqueduct will ~~only~~ double our present supply.

From the terminal reservoir at Cajalco will radiate a system of distribution lines which will be constructed as needed. The first, which is now well along, will follow along the foothills from Ontario to Burbank and Glendale and possibly turn southward through the Santa Monica Mountains to Beverly Hills and Santa Monica. Branches will serve the Compton, Torrance, Long Beach areas and the cities in Orange County. The foregoing I hope will give you a general impression of the physical features of the project and its magnitude.

Let us investigate a moment the necessity for building such a tremendous water supply system as is involved in the

Colorado River Aqueduct. We have here on the Coastal Plains of Southern California, from the San Fernando Valley to and including Orange County and extending to the surrounding mountains, an area of 2,200 square miles, or about 1,408,000 acres of first-class habitable land probably not exceeded in fertility or diversity of utility providing it has water. Of this area about 209,000 acres are devoted to high-value citrus culture, and a total of 666,000 is at present using water. There remains a total land area not at present ~~using water~~ being irrigated of about 650,000 acres. This area contains some 70 or 80 cities and has a present population of about 2,750,000. Its assessed valuation on the basis of about 50% appraisal is almost $3,000,000,000. It contains over 510 manufacturing plants which produced in 1929 $1,300,000,000 of manufactured products.

Los Angeles County produces a greater wealth of agricultural products than any other county in the United States. The area has many oil and gas reserves and accessibility to a great variety of mineral resources. It has a large harbor whose importance is growing rapidly and is served by three transcontinental railroads. With the ~~event~~ advent of Boulder Canyon power, the receiving of which will be celebrated tomorrow, the area will have available tremendous resources of power which can be sold at rates highly attractive to industry and consumers.

The attraction of Southern California climate to people everywhere still persists and, to a large extent through the medium of tourists, will attract a constant stream of permanent residents to this territory.

That, in broad lines, is the present economic situation in Southern California, with which we face the future on the eve of recovery from a great depression and enter upon a new period of expansion, growth, and development such as the nation probably has never witnessed in the past.

In outlining the economic assets of Southern California, I purposely refrain from mentioning our water supply. In this respect we have been deficient. It is only by the grace of God and good luck that we have not suffered paralyzing effects of a disastrous drought and acute water shortage. The safe yield of our present supplies was exhausted some years ago. We have been like a man without a job living on his bank account with the end of his resources clearly in sight. No community can ever afford to gamble on its water supply, particularly in a desert environment. Nature rewards those who protect themselves but deals with a cruel hand those who are negligent.

We have heard much of the fluctuation of rainfalls and wet cycles and dry cycles. Any child could reason that the destiny of 3,000,000 people and $6,000,000,000 of wealth cannot be gambled from year to year on the vagaries of nature. Recently I ran across an article in a magazine issued by the Central Manufacturing District describing the chemical industry on Searles Lake, which to me ~~was~~ contained statements most startling and ominous. The article ~~went on to state~~ that some 5,000 years ago, as determined by geologists, there existed a chain of lakes in the basins now known as Owens, Indian Wells, Searles, Panamint, and Death Valley. These lakes were fed by glacial rivers derived from the retreating ice

caps of that period. At the height of this flow, Searles Lake stood about six hundred feet above the level of its present surface. The old shore lines are still plainly discernible on the slopes of surrounding hills.

As the ice caps retreated and the climate became warmer, the inflowing waters gradually decreased. Still later, the rainfall in this area decreased, springs became dry, and the extensive forests on the surrounding hills perished for want of water. As the drought persisted, the region became more and more arid. The extent of the lake gradually diminished until the elevation of its surface fell below its natural outlet. Consequently the minerals dissolved in its waters were no longer able to escape from the valley. The lake continued to yield its water to the hot desert sun and finally, after alternating wet and dry cycles, there remained a flat white crystalline expanse of sodium and potassium salts.

What happened at Searles Lake just a few hundred miles to the north is what occurred to this whole region. We have only to visit the museum in Exposition Park to observe the permanent change in vegetable and animal life which has occurred in recent geographic times. The safety and assurance to our population and wealth which will be provided by the Colorado River Aqueduct is worth more than the ~~States'~~ aqueduct's total cost even though not a drop of water was sold.

I think ~~it~~ will ~~have been~~ be obvious to you in what I have said ~~of~~ the relationship of the Colorado River Aqueduct to real estate in Southern California. Without water there are no real estate values in Southern California. Even though we may get by

with enough water this year and the next year and the next, it is only a matter of time until the desert would engulf us. A succession of dry years such as we have record of in the past, if we were caught without a new imported water supply, would wipe us out or paralyze our growth for all times. When the drought has struck, it is too late to begin building aqueducts.

So much for the past. Let us investigate what the Aqueduct will mean to real estate from now on. We have reached the end of our growth as far as existing water supplies are concerned. Great areas having no access to additional water are barely scraping by from year to year. Among these areas are some of the finest citrus districts of Southern California. Important cities along our coast are faced with the ever threatening destruction of their underground supplies by the invasion of salt water from the ocean.

As I said before, there are 650,000 acres in this area that could be made fruitful and abundantly productive if water were available. On the one hand, the Aqueduct will provide security for our existing development and on the other will create a sound basis upon which to expand to the full limit of our potentialities.

The District at present comprises 13 cities representing over 60% of the population and over 70% of the assessed valuation in the potential areas to be served. The expansion of the District may take place in two ways - by extending the boundaries of the present member cities, and by the annexation of additional territory. At present energetic steps are being taken towards the annexation (Revise this) of the balance of Orange County not already in the District and other large sections. The District will act solely in the capacity

of a wholesaler. Water will be sold at a uniform rate to all of the units comprising the District. Only areas within the District will be able to obtain water. The policy has also been adopted of encouraging the annexation of large units. Only in this way can the distribution of the water be administered in a sound, economical manner. If important areas were permitted to remain outside the project, they might be able to benefit at the expense of those progressive units who recognized their responsibility and have assumed their fair share in the enterprize. With the use of Aqueduct water some recovery of underground levels might be expected in normal years. Also, the cessation of pumping from underground waters of areas in the District might enable non-members temporarily to absorb the released supply. However, as a matter of practical real estate procedure, here is what will happen. New residents and new industries are going to be looking for land. They will examine the different sites offered to them by our realtors. With a consciousness of the importance of a controlled water supply which, by the way, has not languished as a result of the great national droughts of 1933 and 1936, they will inquire as to the safety and abundance of the water supply serving the property. In a case of members of the District, they will be able to guarantee an unlimited supply. In the areas not in the District, all they have to offer is a gamble on the weather on the year to year basis.

It is not difficult to conceive what the choice of sound business people will be when faced with these alternatives. Knowing the real estate people, I am sure that they will not overlook the force of these arguments in approaching the client.

In the long run it makes little difference whether or not the additional territories come into the District. Eventually In the long run the District cities will get all of the growth because it will have to come to the expanded water supply. if they so desire - will have the privilege of annexing and expanding their boundaries as growth takes place. As to the manner in which Southern California will develop, we need only to consult what has happened in the past. The predominant characteristics of our permanent growth have been as follows:

The large ranches and tracts have been sub-divided into comparatively small units used primarily for agricultural and related purposes. These smaller units eventually broken up into Garden Acres lots for residental purposes. These in turn have been converted into business properties as the need manifested itself. I believe the current trend toward the garden home with sufficient land on which the owner can raise a part of the needs of his family requirements will be accelerated. A recent report at a the National Scientific Convention brought out that new investigations indicated that fresh foods are vastly superior from the health standpoint than those which have been picked green or whose consumption consummation from the time of harvest has been delayed. The conclusion of the report was that in the future the food supply of great cities will be grown closer to the points of consumption consummation. The shorter work-day, allowing more leisure, will foster this type of development.

I visualize the time in the not far future when all of the Metropolitan Area in Southern California previously described, will represent one continuous pattern of small home-sites ranging

from a half to an acre in extent interspersed with large commercial and industrial communities affording employment for an essentially suburban and semi-rural population.

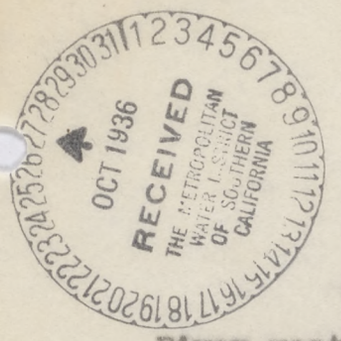
That, Gentlemen, is the general picture of the relation of the Colorado River Aqueduct to Southern California real estate. If time permitted, I could amplify the discussion along many lines. The District is not at all concerned about the market for Colorado River water. The project is basically sound and we could not under any circumstances afford not to build it. An important problem of the future will not be where the water will be sold, but rather who is going to get it. All of the water which will be imported can eventually be put to use in the portions of Orange, Riverside, San Bernardino, and Los Angeles Counties lying on the Coastal Plain this side of the mountains. If the District were to be expanded as far as Santa Barbara on the north and San Diego on the south where water is needed as urgently as any part of Southern California, the Aqueduct supply would prove grossly inadequate.

To territory being included within the scope of the project, careful judgment and discriminating foresight must be used. It is only fair that the Metropolitan section which has financed the project should receive its primary benefit. If The water were permitted to develop territories remote from the local area ~~permitting areas~~ and not contributing to the local economy it would be unfair. In the solution of these great problems of the near and more distinct future, I believe it is essential that men engaged in the real estate profession must have an important voice. They

are as vitally concerned as any other element in our population.

From---Metropolitan Water District ASSOCIATED PRESS

(With Art)



EXCLUSIVE

A giant truck backed out on a dike across the Colorado River yesterday and dumped its load of earth on the pile of hundreds of other truck loads of rock and earth that for days has been built out into the river. The last rivulet of water went down the natural channel, and for the second time in its turbulent career, the Colorado has been diverted. It now flows through two huge 29-foot diameter tunnels which carry it through a mountain and around the site of the Parker Dam, 150 miles downstream from the famous Boulder Dam.

Excavation for the deep foundation for this Parker Dam is being started immediately, and marks a major step in the building of the Colorado River Aqueduct now being constructed by the Metropolitan Water District of Southern California. This aqueduct is the largest construction job in the United States at the present time, and is the largest aqueduct system that has ever been built. When it is completed, it will carry a thousand million gallons of water each day clear across the state of California, for a total distance of 392 miles, to the cities and areas in the Metropolitan Water District.

Located in a semiarid region on the edge of the Great American Desert, Southern California does not receive enough rainfall to supply its water needs, and its increasing population has rapidly used up most of its local underground water supply. Faced by a critical situation, Los Angeles and twelve other cities in the vicinity have banded together to provide for themselves

From---Metropolitan Water District ASSOCIATED PRESS

(With Art)

RECEIVED
OCT 1938
THE METROPOLITAN
WATER DISTRICT
OF SOUTHERN
CALIFORNIA

EXCLUSIVE

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the water that Nature has failed to furnish. To do this, it was necessary to go clear across the state to the Colorado River, since that river offers the only abundant and perpetual source of fresh water not already utilized within reach of Southern California.

Preliminary surveys and investigations for the great project were started as early as 1924, and actual construction work on the $220,000,000 man-made river was begun in 1932. At the present time this construction is approximately one-half completed, and it is expected that the first water will be delivered through the aqueduct in 1939.

Because of its size (the billion gallons per day amounts to 1500 cubic feet of water per second) and the varied types of terrain that it crosses, the 392-mile aqueduct has presented many new problems for the engineers and construction men who are building it. There are 108 miles of tunnels alone on the system, the largest tunneling job in construction history. In order to complete the work in a minimum of time, and with a maximum of safety and economy, it has been necessary to develop many new types of machinery and equipment - all of which have been designed and built for this particular job.

New types of excavation and concreting machinery have been developed especially for the building of the more than 60 miles of canals across part of the desert regions traversed by the aqueduct. These canals are lined with a smooth surface of concrete, 8 inches thick, and reinforced with steel. They are 55 feet wide at the top, approximately 12 feet deep, and are 20 feet

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New types of excavation and concreting machinery have been developed especially for the building of the more than 80 miles of canals across part of the desert regions traversed by the aqueduct. These canals are lined with a smooth surface of concrete, 8 inches thick, and reinforced with steel. They are 85 feet wide at the top, approximately 12 feet deep, and are 30 feet

wide at the bottom.

The canal surface being lined with concrete amounts to nearly 500 acres. To prevent waste of concrete, it is essential that the bottom and sides of the canal be accurately trimmed to its final dimensions before the lining is placed. The heavy draglines used for the main excavation can only approximate the finished dimensions of the canal, and leave the surfaces irregular. Ordinarily this trimming and finishing would have been done by hand, but the slowness of such operations and the expense involved over so many miles of canals has led to the development of special trimming machines, and also special machines for the placing and finishing of the concrete lining.

These machines are primarily movable bridges, suspended from railroad track placed on both sides of the canal. Shaped to fit the dimensions of the canal, the bridge rolls along the track under its own power, leaving behind it completed sections of trimmed and finished canal. The trimmer cuts the irregular sides and bottom of the canal to its final dimension, making a smooth surface on which the reinforcing steel, and then the concrete, is placed. The waste material excavated by the trimmer is carried by a series of bucket elevators and conveyor belts, all a part of the machine, to the top of the canal and piled along the outside.

The paving machine, also suspended from tracks along the two banks, carries a steel form having the same dimensions as the sides and bottom of the lined canal. The machine feeds freshly mixed concrete into the canal in front of the steel form, which with the aid of power vibrators forces the concrete into a dense,

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The canal surface being lined with concrete amounts to nearly 800 acres. To prevent waste of concrete, it is essential that the bottom and sides of the canal be accurately trimmed to its final dimensions before the lining is placed. The heavy dredges used for the main excavation can only approximate the finished dimensions of the canal, and leave the surfaces irregular. Ordinarily this trimming and finishing would have been done by hand, but the slowness of such operations and the expense involved over so many miles of canals has led to the development of special trimming machines, and also special machines for the placing and finishing of the concrete lining.

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solidly placed lining, conforming accurately to the required dimensions of the canal. Immediately behind the paving machine is another movable bridge known as the finishing jumbo. No part of this latter machine actually touches the concrete, but it provides a series of walkways from which workmen, expert concrete finishers, hand trowel the fresh concrete to increase its smoothness.

Moving at speeds as high as one foot per minute, a single machine has placed and finished as much as 944 feet of canal in one day. From the 1st of October to the 1st of June, this canal work goes ahead 24 hours a day. Due to the intense desert heat during the summer months, work on the canal and other "open work" is suspended. This is because temperatures in excess of 90 degrees prevent the proper curing of the concrete. From the latter part of May to the end of September, temperatures as high as 120 degrees in the shade are not uncommon in the desert areas between the Colorado River and the coastal basin, in which are located the member cities of the Metropolitan Water District.

Today, more than 8,000 men are directly employed in building this giant water supply system, which will provide an everlasting protection against drought for the Southern California people in the Metropolitan Water District.

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10-26-36

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10-26-36

LOS ANGELES AS A PART OF
THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

- - -

In considering the subject of Los Angeles and its benefits and responsibilities as a part of the Metropolitan Water District, it is necessary to take into account facts concerning, first, the history of the District, second, the present status of the District's construction and financial program and, third, steps that henceforth should be taken in order properly to protect the interests of Los Angeles and all other cities in the District.

HISTORY

The Colorado River Aqueduct project was conceived and set under way by the responsible engineers and commissioners of the Department of Water and Power of the City of Los Angeles in 1923, five years prior to the establishment of The Metropolitan Water District of Southern California. At that time the officers of the Department of Water and Power came to the realization that steps must be taken to provide an additional water supply for Los Angeles to supplement the water that would be made available through the fullest possible development of the Owens River and Mono Basin supplies,

Los Angeles Starts Aqueduct Project

Acting on authority granted by the Board of Water and

Power Commissioners, William Mulholland, then Chief Engineer of the Water Bureau, set under way in October, 1923, the first surveys and studies on the Colorado River Aqueduct project. In 1925, on the recommendation of the Department of Water and Power, the people of Los Angeles authorized a bond issue of $2,000,000 to finance the continuation of engineering studies and surveys on the Colorado River Aqueduct. As the City of Los Angeles continued to carry forward its engineering plans for the Colorado River Aqueduct, a number of other municipalities located on the South Coastal Plain expressed the desire to participate in this project. Legislation that would enable noncontiguous municipalities legally to form a District for the purpose of financing, building and operating such a water project was drafted by officials of the Department of Water and Power, and was adopted by the State Legislature in 1927. Elections were called for the purpose of establishing the District, and eleven cities, including Los Angeles, voted to become parts of the District. The people of Los Angeles voted to join the District by the majority of seven to one. Since that time, the number of cities in the District has increased to thirteen.

District Takes Over Project

All engineering data acquired by the Department of Water and Power was taken over by the District with the understanding that the Department would be compensated for monies thus expended. In compliance with this agreement, the District has assumed the carrying charges on the $2,000,000 bond issue, and more recently

has authorized the payment in cash to the Department of $903,000 prior to July 1, 1937, as compensation in full for other monies expended by the Department and to cover accrued interest on certain amounts advanced by the Department.

On September 29, 1931, the people of Los Angeles and the other cities in the District voted a bond issue of $220,000,000 to build the Colorado River Aqueduct. In Los Angeles the majority given this bond issue was in the ratio of five to one. The bond issue was voted following eight years of intensive and continuous engineering studies and the fullest possible consideration and public discussion of the entire project.

Relation to Mono Basin Development

Attention should be drawn to the fact that in May, 1930, the people of Los Angeles had approved a bond issue of $38,000,000, a part of which, it was expressly stated, was to be used to finance the development of the Mono Basin water supply. This bond issue was not submitted to take the place of the Colorado River Aqueduct supply, but as a means of completing the development of the City's existing Owens River system. That the people of Los Angeles never considered the Mono Basin water as a substitute for Colorado River water is clearly demonstrated by the fact that the voters, in September, 1931, one year after approving the Mono Basin development, also gave their endorsement, by a ratio of five to one, to the $220,000,000 Colorado River Aqueduct bond issue.

In December, 1932, construction work on the Colorado River Aqueduct was set under way. Work on the Mono Basin development was started in the spring of 1934, somewhat more than a year

later.

Relation to Boulder Dam

It was the evidence that Colorado River water is required to meet the needs of Los Angeles and other Southern California cities that finally persuaded Congress to authorize construction of Boulder Dam. The first Boulder Dam bill was introduced in Congress in 1922. It sought to authorize a high dam to provide opportunity for the generation of hydroelectric energy and flood protection for Imperial Valley. Hostile interests declared the bill represented an attempt to get the Federal Government to finance a public power generating project for the City of Los Angeles. These interests offered the compromise of a low flood control dam with small opportunity for power development. Congressmen failed to extend their support to the high dam bill, and it remained in committee files, without action. Then the Colorado River Aqueduct project was launched, and it was demonstrated that a high Boulder Dam was essential to the providing of an adequate water supply for Los Angeles and other Southern California cities. This basic need for water was not ignored by Congress, and in 1928, after the California Legislature in 1927 had adopted the Metropolitan Water District Act, Congress adopted the Boulder Dam bill.

The Boulder Dam bill provided that the Secretary of the Interior should not be empowered to commence construction of the dam until he held firm contracts for the sale of sufficient Boulder Dam power to guarantee the repayment of the cost of the dam, with interest, within 50 years. Authority for the Secretary

to start construction work was given when the Metropolitan Water District, the City of Los Angeles and the Southern California Edison Company signed power purchase contracts with the Government. The District, with its agreement to purchase 36 per cent of the firm Boulder Dam power and the first right to all of the secondary power, was the largest single allottee of electric energy from the dam.

PROGRESS OF AQUEDUCT WORK

On July 1, 1936, construction work on the Aqueduct was 45 per cent completed. Of the 108 miles of tunnels on the system, 98 miles had been excavated and 50 miles had been concrete lined. Of the 62 miles of canals, 55 miles had been excavated and 52 had been completed; of the 52 miles of covered conduit, 30 had been completed, and of the 26 miles of siphons, 20 miles had been completed. Work on Parker Dam was under way with the diversion tunnels scheduled to be completed on August 10. Work on Cajalco Dam was approximately 38 per cent completed. Construction of four of the five pumping stations was in progress; erection of the power transmission line from Boulder Dam was 45 per cent completed, and 42 miles of distribution mains between Cajalco reservoir and Los Angeles were being installed.

Financial Status

Commitments of the District, as of July 15, 1936, amount to $168,400,000. These commitments cover contracts awarded for materials, equipment and construction work. Construction work accomplished to the same date, including preliminary costs and

Morris Dam, totaled $96,900,000. Bonds to the amount of $91,000,000 had been sold up to July 15.

In the light of work completed and contract commitments now in effect, it is evident that the Aqueduct will be completed within the original estimate.

BENEFITS AND FINANCIAL RESPONSIBILITY

Officials of the City of Los Angeles at the time the Colorado River Aqueduct project was first undertaken and the officers of the District today recognize the metropolitan area of the Southern California Coastal Plain as an economic unit. The need for additional water appears to be more acute in some sections of this area than in others, but it is recognized that all sections, developed and susceptible of development, are faced alike with diminishing local water supplies. It is also recognized that no isolated section, even though it might enjoy temporarily a sufficient water supply, could long continue to prosper and grow if other and neighboring sections suffered heavy losses by reason of a water shortage. Accordingly, the Colorado River Aqueduct was designed to meet the reasonable needs of this entire metropolitan area. It is only natural that the initial responsibility of providing such a water supply should be assumed by those centers of population and wealth capable of undertaking such a project. Thus it was that the cities which assumed the burden of launching the aqueduct work include the ten larger communities of Los Angeles County and the three larger municipalities in Orange County.

With construction work on the Aqueduct now in progress,

the time has arrived when the District should be expanded to permit the inclusion of all sections in this metropolitan area which need the water and, especially those sections which stand in urgent and immediate need. Thus far, all municipalities in the District have shared equitably in its financial obligations, and it is the avowed policy of the Board of Directors of the District that the same equitable distribution of financial obligations is to be maintained when the Aqueduct is placed in operation.

Expansion of District Benefits All

Sections which need additional water will reap an immediate and permanent advantage by joining the District at this time. By the same token, cities now in the District should welcome the proper expansion of the District area for the reason that it will thereby extend the base upon which will rest the financial obligations of the District and, accordingly, will reduce the individual responsibility of each member city.

For example: When the District was organized with eleven member cities, Los Angeles represented 81 per cent of the assessed valuation of the entire District and, therefore, Los Angeles bore 81 per cent of the financial responsibility of the District. This year, with thirteen cities in the District, Los Angeles represents 72 per cent of the total assessed valuation, and its financial responsibility has been reduced accordingly.

For the year 1935-36 the assessed valuation of the District is $1,783,000,000. By including within the District other Coastal Plain areas as could practicably and economically

be served by the Aqueduct, the assessed valuation of the District would be increased to $2,600,000,000, on the basis of present assessed valuations.

This increased assessed valuation brought about by the annexation of additional territory automatically would reduce Los Angeles' share of financial responsibility from the present 72 per cent to about 50 per cent.

It is evident, therefore, that the proper expansion of the District's area will be beneficial to Los Angeles and other cities now in the District, as well as to the sections thus permitted to join the District. Such additions of new territory, however, could be brought about only on the basis of an equitable distribution of Aqueduct charges among the parts of the District.

Operation and Maintenance Costs

Aqueduct costs to be met following the completion of the system are, first, carrying charges on outstanding District bonds and, second, operation and maintenance expense on the Aqueduct.

Practically all of the Aqueduct's operation and maintenance costs in the early years of operation actually are fixed charges. These charges will rest against the District regardless of whether or not water is carried by the Aqueduct.

For the first year of the Aqueduct's operation, fixed charges for operation and maintenance will amount to approximately $3,360,000. These charges include $790,000 for operation, administration, taxes, insurance, etc; $390,000 for depreciation and reserves; $2,180,000 for minimum Boulder Dam power charges.

These fixed power charges are practically doubled by the fourth year of operation, thus making a 50 per cent increase in the District's total fixed obligations for operation and maintenance.

The cost of delivering 400 second feet of Colorado River water into the Coastal Plain would amount to approximately $3,460,000, or only $100,000 more than the minimum fixed charges on account of operation and maintenance. Five hundred second feet of water can be delivered by the Aqueduct at an operating and maintenance cost of $3,625,000 for the first year, an amount only $265,000 greater than the fixed minimun of operation and maintenance costs.

Thus, it is evident that it is distinctly to the advantage of Los Angeles and all member cities to bring into the District additional water consuming territory during the early years of operation.

It appears to be self-evident that the burden of meeting fixed operation and maintenance charges cannot be shifted from that portion of the District which now represents 72 per cent of the assessed valuation to other portions which all together represent only 28 per cent. Such fixed charges, as a matter of actual practice, cannot be absorbed by those portions of the District which represent only 28 per cent of its valuation.

Proper Distribution of Benefits and Costs

Annexation of additional territory needing and ready to consume considerable quantities of Colorado River water, however, will provide revenues to offset operation and maintenance charges

and, at the same time, will serve to reduce the financial obligation of present member cities, including Los Angeles.

For the past several months active negotiations have been under way looking toward the use of Aqueduct water by highly developed urbane and horticultural areas located in the metropolitan area but not now included in the District.

The areas and cities which have within the last year communicated with the District expressing interest in the proposition of securing a share of Colorado River Aqueduct water include the Foothill area of 80,000 acres from Glendora to Upland, including approximately 32,000 acres of highly developed citrus land and the communities of Pomona, Ontario, Upland, Claremont, San Dimas, La Verne, and Glendora; Orange County Water District, including about 200,000 acres of agricultural land; the South Coast Water District of Orange County, including the city of Laguna; territory between Santa Ana and San Juan Capistrano, including El Toro and vicinity; Hermosa Beach and vicinity; San Diego and numerous communities along the coast line in San Diego County, including San Clemente; Elsinore and adjacent irrigated areas. In addition, large areas in Ventura County, including the Simi Valley, are giving serious consideration to obtaining a large water supply from an outside source.

Several conferences have been held between representatives of these areas and a committee of the District's Board of Directors. In every instance, these conferences have reached the stage of a formal request on the part of the outside communities for a cost figure on Aqueduct water. The District is now giving serious consideration to these many requests for information concerning Colorado River water.

DEC 1936
RECEIVED
THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Dear Mr. Whitsett:

I enjoyed your interview and am attaching an "unretouched" copy of about what I think the Mexican reporter thought you said, in Mexico.

J.H.

JH:DS

Enclosure

SUCCESS BOND

THE PARADISE OF THE TOURIST
SO THINKS W. P. WHITSETT, OF MEXICO -
THE FUNDAMENTAL BASIS OF THE GRANDEUR
OF OUR COUNTRY -
ENTHUSIASTIC EULOGIES

Certainly few people who visit us from the outside feel for our country an affection so sincere and see in it such marvelous opportunities that are offered for the laboring man, or opportunities for business, as Mr. W. P. Whitsett, who has been in our midst for several days. Mr. Whitsett is a prominent man of Los Angeles, California, and at the time President of the Board of Directors of The Metropolitan Water District of Southern California. He made his first visit to Mexico some thirty years ago, and the remembrance of that visit caused him to direct his steps again to the "land of marvels", as he calls it.

We met him in the lobby of the Hotel Geneve, where he is stopping with other prominent Californians. He received us affably, and upon being told that "El Universal" desired a brief interview, smiled, inviting us to have a chair.

"Do you find Mexico changed?"

"Very much changed," said Mr. Whitsett. "The fundamental bases of your greatness were not understood then as well as now."

He meditated a moment, and then continued speaking to us in a tone of voice which impressed the absolute certainty of each

word that he spoke.

"The whole problem - all in all - is to know where we eat; how, and how cheaply we can produce our foodstuffs. The greatest thing that can be done is to teach the people to obtain the greatest possible returns from the land and to keep the population working. It is not essential to draw the country people into the cities, for this is very costly. It is necessary that the laborers cultivate the land, build construction works, irrigate the land. This creates opportunities and new wealth."

Then Mr. Whitsett told us that the airplanes, the automobiles, and other modern means of transportation, had united Americans and Mexicans in the closest bonds of friendship. What is necessary is that more people from America visit Mexico, and that a greater number of Mexican visitors go to our neighboring country, for thus each can see and admire the things of each country.

Continuing, he gave us a brief story of the gigantic irrigation works which are being constructed in California to utilize the waters of the Colorado River, works which involve the sum of $220,000,000 and that have given employment to more than 10,000 workers. In this works, which ~~are~~ is under the direction of Mr. Whitsett, there are utilized 100 cars of materials daily, and expenditures reach three or four millions of dollars per month; all in order to irrigate land which will offer prosperity and wealth to many cities of California.

He continued with a comparison of what it had been necessary to expend in that region (southern California) to obtain the

precious liquid, and the great opportunities that exist in some parts of our country to irrigate the farm lands. Money and work in exchange for the bounties of Nature!

Mr. Whitsett has been an indefatigable traveler, and from him who has visited many countries of the world comes now the flattering preferences (?) which exist for Mexico.

"You are able to produce," he told us, "a great diversity of foodstuffs, on small parcels of land, 365 days of the year, with less cost than in any other country of the world."

Finally, he eulogized the artistic talent of our workmen, who are able to produce veritable marvels, the beauty of the Mexican country, our archeological jewels, and all of those things which the tourist at a high cost does not see in Europe, and which can be enjoyed in our country in exchange for a most economical trip, thanks to the level of the Mexican peso.

"Mexico," he told us, in closing, "is the paradise of the laboring man and the tourist."

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From "El Universal"
Nov. 12, 1936
Mexico City

Translated by Julian Hinds
December 3, 1936

JH:DS

THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA
306 WEST THIRD STREET
LOS ANGELES, CALIFORNIA

May 3, 1939

W. P. WHITSETT, CHAIRMAN
FRANKLIN THOMAS, VICE-CHAIRMAN
S. H. FINLEY, SECRETARY

ANAHEIM
BEVERLY HILLS
BURBANK
COMPTON
FULLERTON
GLENDALE
LONG BEACH
LOS ANGELES
PASADENA
SAN MARINO
SANTA ANA
SANTA MONICA
TORRANCE

Since speaking to the Water and Power Resources Committee of the Los Angeles Chamber of Commerce on the policies and program of the District, I have received requests from our Directors and others for a copy of my remarks. It has occurred to me that you might also be interested in what I said on these subjects and am therefore enclosing a copy.

In discussing the policies and program established by the Board I endeavored to follow strictly the record of our actions. Wherever I expressed my personal convictions I tried to make it clear that I was not necessarily stating the official policy of the Board.

In this connection I would like to take this opportunity to say that the more I study the present trend of the District's policies the more I become concerned that we are going to exhaust our remaining funds before we have succeeded in placing the project on a satisfactory operating basis.

After our splendid record during the period of construction I think it would be a great tragedy if the savings which have been effected are not conserved and used to the greatest possible advantage in building up our revenues from the sale of water. As I have said repeatedly, I am fearful that in undertaking to build elaborate treatment plants and to deliver two kinds of water throughout a territory as large and as varied as Southern California, the funds we have saved will be exhausted before we know it and with very little accomplished towards building up our water load. My experience with the District and elsewhere is that once a precedent is established, there is no backing up. The demand is always for more and larger concessions and refinements.

I am not yet convinced that the need for the water softening plant has been demonstrated. In my opinion, the early demand will be primarily for agricultural purposes. The added cost of the treatment is going to curtail consumption and result in our member cities continuing to use their present supplies as long as it is more economical to do so. I would have been favorable to the building of a treatment plant on an experimental scale, but two 50,000,000 gallon a day units with plans for one or more additional plants can hardly be said to be experimental.

It has been my hope since we first started construction that we could finish the initial development with an unexpended balance of between thirty and forty million dollars. With this sum on hand we would have a great bargaining lever in effecting annexations and some tangible inducement to offer areas needing water. Our procedure would be something like this as I visualize it. A group of residents from some area on the coastal plain comes in and asks what they have to do to get water. We define to them the annexation unit to which they belong as determined in advance by the District, and tell them to go out and get this area consolidated in the proper legal setup and that then their application will be given due consideration. The next thing they will want to know is what the District will do for them in the way of delivery connections. At this point we should, in my opinion, ask them to estimate the amount of water which they would guarantee to take at the prices fixed by the District. Then on the basis of the water revenue which will be derived from their particular area, the District could compute the amount which it would be justified in spending from its savings in order to promote additional business. It would be a straight forward business proposition and could be worked out in a businesslike way. It comes down to this, the more revenue we could be assured of in each particular case the more the District could afford to contribute. When the outside areas came to realize that our construction savings were available on the principles of first come first served as long as the funds last and the larger the water demand the greater the District's contribution, a healthy competition for membership would be fostered. The smarter leaders would soon realize that when these funds are exhausted the District will be compelled to require additional annexations to provide their own connections and facilities just as Mulholland did in the case of the San Fernando Valley. The success of this setup depends on our having a large fund of savings to work with.

I don't mean to imply that we are wasting any money or that we are departing from the economical and efficient program we have always followed. However, there comes a time in

I am not yet convinced that the need for the water softening plant has been demonstrated. In my opinion, the early demand will be primarily for agricultural purposes. The added cost of the treatment is going to curtail consumption and result in our member cities continuing to use their present supplies as long as it is more economical to do so. I would have been favorable to the building of a treatment plant on an experimental scale, but two 50,000,000 gallon a day units with plans for one or more additional plants can hardly be said to be experimental.

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every project when spending can and should be stopped. This point is always short of the things we would like to do and even of finishing touches for which there is considerable justification.

In addition to the desirability of having a large fund for annexations as I have discussed, we must also bear in mind that in a large project such as ours with many unprecedented features there is always the possibility of having to incur large expenditures for repairs or alterations before it is placed in successful operation. An earthquake or major disaster could easily wipe out our entire savings. How additional funds would be obtained once our money is all spent I do not like to contemplate. The only precaution I can think of is from now on to cut our construction program to the bone in as hard-boiled a way as we know how and feel our way carefully as we get on a satisfactory operating basis.

At the start of this letter I had not intended to get into this discussion again. However, the subject is very close to my heart and I want very much to have you and the other Board members know my thoughts and where I stand. On the other hand, I would appreciate very much having a frank statement of your views on this important subject.

The policies and program we establish during the coming year are probably going to be among the most important and far-reaching of the project's history. The $20,000,000 or so that we have saved will not go very far when it comes to building treatment plants and delivery lines unless a very careful and far-seeing program is worked out. We now have our insurance against drought. Because of depression and a few years of above normal rainfall we are probably five or more years ahead of our original schedule. We have about $20,000,000 left with which to build up our revenues and get the project on a sound operating basis. When this money is gone, the District, in my opinion, is going to be in the position of a beggar with a tin cup. Additional bond funds for the Aqueduct will probably prove to be impossible. Our whole future depends on how wisely we make use of our construction savings.

Yours very truly,

W. P. Whitsett

Enclosure

Address by Chairman W. P. Whitsett, Board of Directors
The Metropolitan Water District of Southern California

MAIN AQUEDUCT COMPLETION CEREMONY

October 14, 1939

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Mr. Rossetti, Ladies and Gentlemen: --- We who are gathered here today are standing in the presence of an historic event. We have witnessed the actual completion of the main line of the Colorado River Aqueduct, the greatest construction job of its kind ever to be brought to successful completion in America.

"The main line of the Colorado River Aqueduct has been completed." This is the report - this is the message which we today are able to give to the citizens of the thirteen golden cities which comprise The Metropolitan Water District of Southern California. This is the report which we today are able to give to all the world. This is the report which we are able to give to those who, in years gone by, have said; "It can't be done."

Back of this report of accomplishment stand twenty years of bold and practical dreams of a mighty water supply system that will forever free the cities of the Metropolitan Water District from the menace of drought. Twenty years of careful, expert planning by the most competent and able group of engineering authorities ever assembled on a similar project. Twenty years of tireless work on the part of public spirited citizens who have given their unwavering support to the end that a vital and essential public enterprise might be successfully consummated. And finally, during the past seven years of this period -- all these dreams and these plans have been wrought into a gigantic structure of reality

by the toil and the loyalty of the great army of aqueduct workmen who have now brought to completion the actual construction of the major part of a gigantic water supply system that will bring an everlasting flood of life-giving water from the Colorado River to each of the cities within The Metropolitan Water District of Southern California.

The completion of the main aqueduct today signalizes the final victory in the long war that our people have waged against the Desert and against the menace of Drought. It is a war that has been won by a great peace-time army of citizens and workers. It has been a war of constructive planning and building - and not a war of destruction and devastation. In the winning of this war our great army of aqueduct builders have used 7,000,000 barrels of cement - but they have not used this cement to build forts, and trenches and pill boxes for the emplacement of cannon and machine guns. They have used it to build an everlasting water supply system extending 392 miles from the Colorado River to the thirteen cities of the Metropolitan Water District. In the winning of this war our aqueduct builders have used 283,000 tons of steel. But they have not used it to build weapons of destruction and death. They have used it to reinforce and strengthen a great life-giving water supply system that will forever sustain and enrich our children and our children's children in this favored land. In the winning of this war our aqueduct builders have used 20,000,000 pounds of dynamite and high explosives. But they have not used it to destroy cities and homes and to kill and injure defenseless women and children. They have used it to blast away the stubborn mountain barriers that stood in the pathway of a

life-line of water - water now ready to flow through these mountain barriers and onto the Coastal Plain of Southern California.

Within the next few days the main aqueduct will be ready to begin the delivery of water into the Cajalco Reservoir. A number of months henceforth the aqueduct's distribution system will be ready to deliver this new water supply to the gates of the thirteen cities of the Metropolitan Water District.

The Colorado River Aqueduct has been built for an ultimate capacity of 1500 second feet -- or approximately one billion gallons of water a day. It is the largest single domestic water supply system in America. It is a water supply system which has its source in the vast snow-covered western slopes of the Rocky Mountains. Today, with the completion of the main aqueduct accomplished, the people of our thirteen District cities are secure in the knowledge that they possess a water supply surpassed by no other section of America. It is a water supply, first of all, that assures our thirteen cities an abundant quantity of water forever to sustain our present development - and to support and encourage a new and golden era of growth and expansion. The homeseeker may build his home and settle his family and his business in any one of the thirteen District cities with the absolute assurance of a bountiful supply of good water available for his use at reasonable rates. The industrialist may invest his capital in any one of our thirteen District cities with absolute security against any possibility of a shortage of water, now or in the future.

Furthermore, the completion of the main aqueduct today gives our people a permanent and a controlled supply of water.

Back of this aqueduct system stands (Boulder Dam and) Lake Mead, capable of storing 30,000,000 acre feet of water and today actually holding in storage more than 20,000,000 acre feet. And back of Lake Mead stands the vast water shed of the snow-covered western slopes of the Rocky Mountains.

The everlasting wealth and security that have thus been brought to the people of our thirteen District cities are the fruits of our people's clear vision to see and recognize their needs -- and the indomitable courage to authorize the undertaking of a herculean task. Our people gave decisive evidence of this vision and courage when they voted by the overwhelming majority of 5 to 1 a bond issue of $220,000,000 to finance the building of the aqueduct. Countless are the men and women of our communities who through their leadership and their support have made possible the accomplishment of the aqueduct project. Among those to whom we are especially indebted are the Directors - past and present - from the thirteen District cities. These men have given unsparingly of their time and best efforts without salary or thought of reward beyond the satisfaction of helping to get a big job well done. And here let us pause in tribute to the memory of those who were taken from us before this hour of victory.

Foremost among the men whose vision and works made possible this great day for us are W. B. Mathews and William Mulholland. The public services they rendered to our people shall live forever in the minds and the hearts of generations to come. As Special Counsel of the Los Angeles Department of Water and Power, and as the General Counsel for The Metropolitan Water

District of Southern California, W. B. Mathews was one who did as much as - or more than - any other to formulate and secure the passage of the Boulder Canyon Project Act by the Congress of the United States. It was his wise counsel and his tireless efforts which guided and crowned with success the organization of this District and helped immeasurably to clear the pathway for this gigantic water project in its early days. William Mulholland is the father of our great water supply systems in Southern California. As the builder of the Owens River Aqueduct he brought to Los Angeles the water that has made possible its amazing growth from a small community to the metropolis of the Pacific Coast. It was William Mulholland who saw the vital need of a still greater supply of water to meet the future requirements not only of Los Angeles but of all of this metropolitan area. And it was he who pointed to the Colorado River as the one available source for the additional water we must have. Under his direction the first engineering studies and surveys for the Colorado River Aqueduct were set under way in 1923.

When the Metropolitan Water District was established in 1928 it took up the work that had been carried forward in preceding years by William Mulholland and his able engineering associates and assistants.

To direct and push forward the huge and complex task of planning and building the aqueduct, the District Board of Directors sought the best qualified engineer in America. They found that man in Frank E. Weymouth. As Chief Engineer of the United States Bureau of Reclamation for many years, Mr. Weymouth was intimately

familiar with the problems of the Colorado River before he took over his duties as the Chief Engineer of the District. Under Mr. Weymouth's direction there has been brought to the service of the District an organization of engineering, technical and administrative authorities whose unsurpassed ability speaks for itself in the great aqueduct system we see completed today. We of the Board of Directors are proud of the great public service that has been rendered by Frank E. Weymouth and his staff. We are proud of the loyalty and the efficiency of the army of office and field workers who have built this aqueduct system. We believe the people of California join us in this pride and in our thanks.

Today, as we look back over the long years that our people have planned and worked to bring to a reality the Colorado River Aqueduct, we realize, at last, that we are standing on the threshold of a new and golden Era for the cities and areas that come to share in the use of this bountiful new supply of water. We lift up our eyes and look out over the rich expanse of the Coastal Plain of Southern California - and we see that it has just begun to grow and to prosper as a favored land of heart's desire. At last the way has been cleared - the structures have been built. Through the portal of this tunnel which pierces the towering barrier of Mt. San Jacinto there now shall come a constant, abundant, controlled supply of water. Water - the priceless possession of a desert land. Water - to build and sustain a new Empire upon the shores of the Pacific.

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MEMORANDUM

ON DISPOSITION OF
DISTRICT UNUSED BOULDER POWER
January 12, 1940

J. M. Gaylord

Through its Boulder power contract the District has provided for a power supply sufficient for pumping 1000 sec-ft of water in the Aqueduct and has made partial provision for the remainder of its ultimate power requirements. Participation in this joint venture with other Boulder power allottees required less capital investment than would have been required if the District had built its own power plant, and the cost of energy is less than would have obtained under any available alternative plan of securing the power necessary for pumping.

Under any plan of supplying power for a gradually developing demand which will reach large proportions in the distant future, the initial expenditures are out of proportion to the requirements during the early years. Under the existing Boulder power contracts the District was required to pay for more energy than it could use at the start of its operations, but the high cost during early years has been mitigated to some extent by the three-year absorption period provided in the contract, and by the provisions for the resale of energy for which the District is obligated to pay but which it cannot use.

Under the latter provision energy for which the District is paying the firm rate, now 1.63 mills per kwhr, is being sold at

11

the same rate to Kingman, Needles, Salt River Valley Water Users Association, and Bureau of Reclamation at Parker Dam. It is being taken by the Southern California Edison Co. at the secondary rate, now .5 mills per kwhr and it is believed that the District will receive credit for the energy taken at the secondary rate by the City of Los Angeles under its third-circuit contract. Thus, through active pursuit of this matter during the last three years, practically all of the District's unused energy is being resold although some of it is being sold at less than its cost to the District, due to the provisions of the original power contracts giving the City and Edison Co. rights to pay at the secondary rate for any energy taken in excess of their firm obligations.

In addition to the credits to be received for unused energy resold, the District, through an agreement with the Bureau of Power and Light, is being relieved of the amortization, maintenance and operating charges amounting to about $173,000 per year on one of the generators installed at its request. This generator will be used to generate energy for the City's third circuit, for which the District will receive credit as previously mentioned.

It is estimated that during the calendar year 1941, the District's obligation for energy and generating equipment will be $2,739,000. On the basis of actual costs, that is to say, the use of one generator plus the falling water charges on the amount of energy used to pump water, the District's cost

for power actually used will be $1,061,000. The District will receive credits for energy resold and for the use of generating equipment amounting to $747,000. On this basis the difference between District cost and credits will amount ot $931,000.

This "loss" is due to selling some 844,000,000 kwhr at the secondary rate. This amount of energy can be withdrawn from those users who will be purchasing it at the secondary rate and will be available for sale elsewhere, provided equipment can be made available to generate it, and providing customers can be found who will pay a higher price.

The question of generating equipment is important. The District will require continuous use of one generator. The District's second generator has been released to the City until September, 1942. In the meantime undoubtedly it will be possible to make arrangements for generating some additional power on other units in the plant which are not fully loaded.

The City is installing two additional generators and expects to have them both in operation in 1942. After September, 1942, the District's second generator of 82,500-kw capacity will be available for such use as may develop. This generator at an ordinary rate of use, 60 per cent load factor, will deliver 435,000,000 kwhr per year, or about half of the District's unused energy which is estimated to be sold in 1941 at the secondary rate. An additional generator would cost $2,500,000 with annual carrying charges of about $233,000, and at least two years would be required for installation. The amount of District's unused

energy probably will diminish to zero in about 15 years, and it is not likely that the installation of an additional generator would be economically justified by the increase in the sale of unused energy which it might possibly bring about. The diminishing availability of such energy is a serious obstacle to any contract at an advantageous price.

The transmission of power from Boulder Dam to the point of use also is a major problem to be solved in securing customers. There is some excess capacity in the District's transmission line but other lines out of Boulder are known to be well loaded. In general the best prospects for sale of the District's energy are those within reach of the District's line extending from Boulder to Hayfield and Gene pumping plants. Among such prospects the Imperial Irrigation District and metallurgical operations near Boulder and Parker should be mentioned. The Edison Co. also is considering the construction of a second line, and in this connection may wish to secure the right to use the District's second generator to utilize some of the District's unused energy.

A tabulation is attached showing the estimated power costs and credits for the calendar year 1941. Also a diagram showing the energy requirements of the District, as well as the amounts and disposition of all of the District's unused power.

ESTIMATED BOULDER POWER COSTS

(Calendar year 1941)

District's Obligations

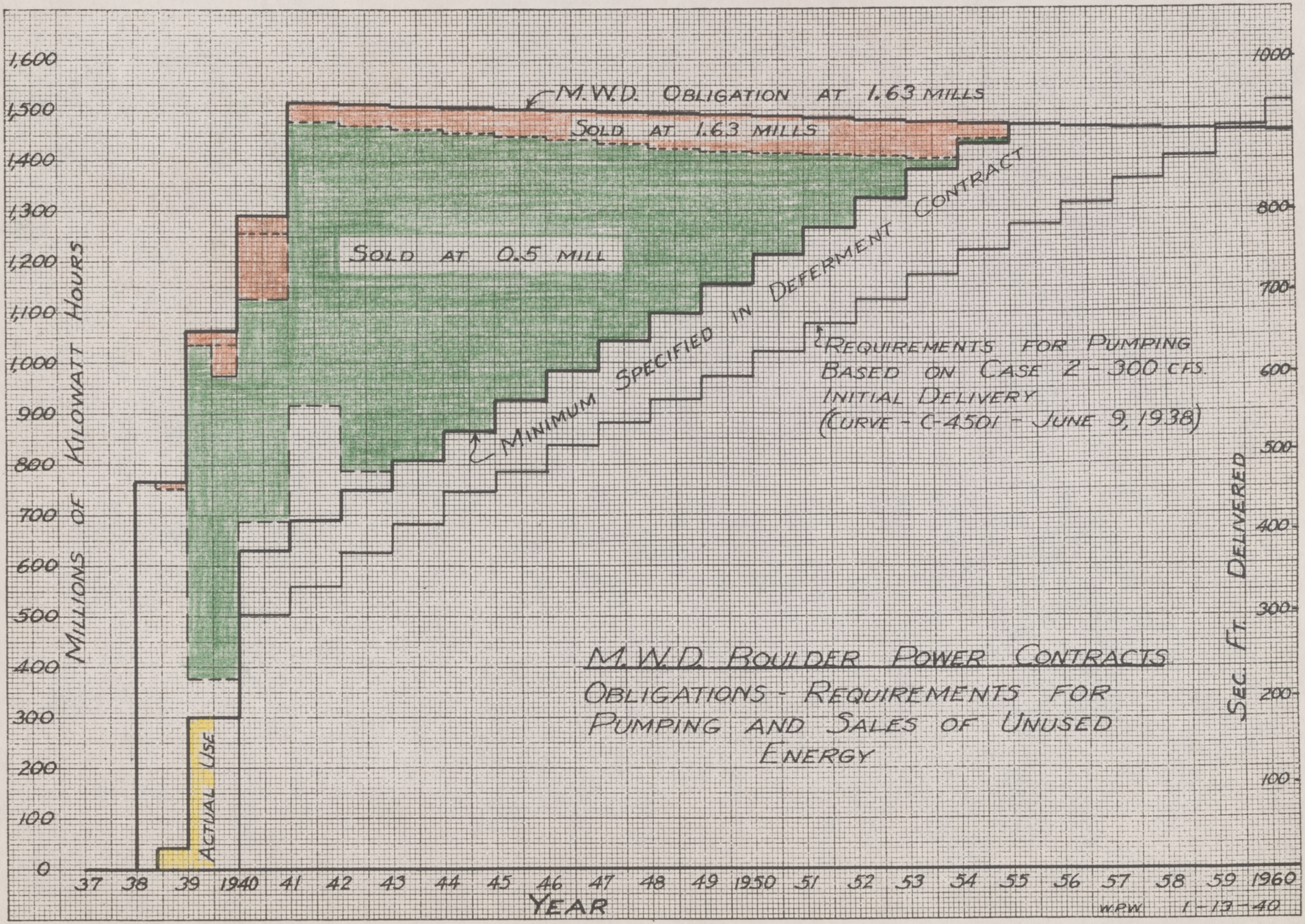
Falling water		$2,315,000
Amortization of generating equipment	$252,000	
Replacements	44,000	
Operation and maintenance	110,000	
Subtotal - generating costs (2 units)		406,000
Additional generating cost chargeable to Needles and Kingman		18,000
Total Boulder power bill		$2,739,000

District's use of Power

For falling water (300 sec-ft pumped)	$ 828,000
Generating costs (1 unit and transformers)	233,000
Total use	$1,061,000

Estimated Credits for Energy

Kingman at 1.63 mills per kwhr	$ 17,000	
Needles at 1.63 mills per kwhr	46,000	
Salt River Valley Water Users' Assn. at 1.63 mills per kwhr	83,000	
Indian Office at 1.63 mills per kwhr	1,000	
Bureau of Reclamation at 1.63 mills per kwhr	5,000	
City of Los Angeles at .5 mills per kwhr	422,000	
City of Los Angeles use of one generator	173,000	
Total credits		747,000
Total used and sold		$1,808,000
Difference - obligation minus credits and use		$ 931,000



M. W. D. BOULDER POWER CONTRACTS

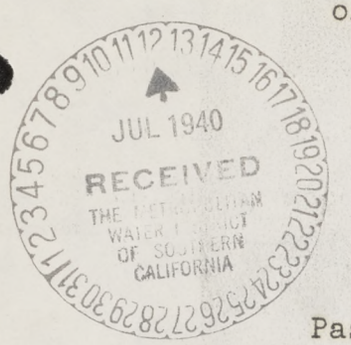
OBLIGATIONS - REQUIREMENTS FOR PUMPING AND SALES OF UNUSED ENERGY

W.P.W. 1-13-40

Released to 3 L. A. Daily Papers, District Dailies and District Weeklies.

From---The Metropolitan Water District of Southern California

FOR IMMEDIATE RELEASE



Passage by the Senate yesterday of the House bill providing a revision in Boulder Dam power rates was regarded in Southern California today as positive assurance that the legislation will soon become law. It remained only for the House once more to formally adopt the Senate bill which previously had gone through the Lower House and then been sent to a conference committee. Adoption of the bill by the Senate yesterday crowned with success a three-year battle carried forward by General Manager F. E. Weymouth and General Counsel James H. Howard of The Metropolitan Water District of Southern California, officials of the Water District pointed out.

Revision of the power rates as authorized under the bill will effect a savings to the Water District of more than $600,000 annually for the first three years, about $800,000 annually for the following four years, or a total of about $16,000,000 during the life of the District contract, it was stated. This large annual saving to the District will be passed directly on to the taxpayers of Los Angeles and the other twelve cities of the District, it was explained in the offices of the District yesterday. In addition, the City of Los Angeles, the other large user of Boulder Dam power, will realize annually savings of like amounts, it was shown.

Principles incorporated in the new legislation were submitted to the Department of the Interior some three years ago by

General Manager Weymouth of the Water District, and the bill adopted by Congress follows closely the draft of proposed legislation prepared by General Counsel Howard of the Metropolitan Water District.

In brief, it was pointed out, the new bill permits the Government to fix Boulder power rates based upon the financial requirements of the Boulder Dam project, while formerly the rates were fixed on a so-called "competitive" basis. The rates charged under the old "competitive" method, Mr. Weymouth pointed out to Government officials, was higher than those charged by comparable Government power projects and returned to the Government more revenues than actually were required to meet all financial obligations in connection with the Boulder Dam project.

Power being purchased by the Metropolitan Water District from Boulder Dam is used to operate the five giant pumping plants that raise Colorado River Aqueduct water over mountain barriers standing between the Colorado River and the thirteen cities of the District. Under a contract with the Government, the District will take and use 36 per cent of all firm power generated at Boulder Dam. The District cities that will realize a material benefit through the reduction of power rates made possible by the new legislation are Anaheim, Beverly Hills, Burbank, Compton, Fullerton, Glendale, Long Beach, Los Angeles, Pasadena, San Marino, Santa Ana, Santa Monica, and Torrance.

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7-11-40

JUL 1940
RECEIVED
THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

From--The Metropolitan Water District of Southern California

EXAMINER
Saturday's Paper

Also released to Times, News and News Bureaus.

High praise of the public services rendered by its General Manager and Chief Engineer, F. E. Weymouth, and his associates in inaugurating and helping materially successfully to bring about the adoption by Congress of the Boulder Dam power rate revision bill was contained in an official statement issued yesterday O (Friday) by the Board of Directors of The Metropolitan Water District of Southern California.

The statement issued by unanimous action of the District Board of Directors is as follows:

"The Board of Directors of The Metropolitan Water District of Southern California desires to commend General Manager and Chief Engineer F. E. Weymouth, General Counsel James H. Howard, and Chief Electrical Engineer J. M. Gaylord for the notable public services they have rendered in bringing to the attention of Congress the compelling facts which account, in a large measure, for the adoption of the Boulder Dam power rate revision bill.

"It will be recalled that officials of the Department of the Interior first gave consideration to the proposal of revising Boulder Dam power rates some three years ago, when Mr. Weymouth submitted to the Government the basic principles which have been incorporated, to a large extent, in the legislation adopted by Congress. The bill passed by Congress follows closely the draft of proposed legislation prepared by General Counsel Howard. Many facts and figures upholding the equity of the new legislation were provided by Chief Electrical Engineer Gaylord.

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"Boulder Dam power purchased by the District is required for the operation of the five pumping plants on the Colorado River Aqueduct. It therefore follows that the reduction in the power rates made possible by the new congressional legislation will be reflected in a lower cost of delivering Colorado River water to the cities of The Metropolitan Water District of Southern California."

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7-12-40

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7-12-40

Mr. Chairman, distinguished guests, friends:

During the 28 years of our civic existence many men have prophesied, guessed, wished, hoped, and speculated, more or less, as to our course into the future. It is only natural that we should all be deeply concerned with the growth of population and wealth of our community.

As bearing on our destiny, it is most enlightening to check what men of vision have had to say about the destiny of Southern California.

Almost thirty years ago, E. H. Harriman, the greatest railroad genius of all time and one of this nation's grestest builders, is reported to have said at a banquet in New York after returning from Southern California, - Gentlemen, in a hundred years it will not be Paris, Berlin, London, or New York that is the biggest city in the world, but it will be Los Angeles, California, providing sufficient water can be imported.

When we were getting the appropriation to start Hoover Dam, Dr. Ray Lyman Wilbur, President of Stanford University and at that time Secretary of the Interior, said, "There are two great migrations of people taking place in the world today, one into Manchuria and the other into Southern California."

Two weeks ago at the annual banquet of the Los Angeles Realty Board, Dr. Polyzoides of the University of Southern California, a lecturer, writer, and profound student of world affairs, said,"Europe is fast drifting toward political and economic bankruptcy; our eastern seaboard is reflecting the

European decline; the Pacific area is fast coming into its own. With the coming of the Pacific era Los Angeles is destined to become the world's greatest city."

Many years ago and before most of you had made your homes here, I became convinced that when the merits of the San Fernando Valley were fully discovered one-half of the next million people locating in Los Angeles would build their homes within this mountain-walled garden. I am proud of that prediction and I am more convinced today than ever before of its accuracy.

A well-known national speaker recently on the radio made a remark which has an important bearing on this subject. He said in effect that an analysis of the stability of the age-old country of England in comparison with conditions as they exist in the United States reveals an important difference in the habits of the two people. In England when a man acquires independence or competency he immediately moves into the country. In the United States when a man arrives at economic independence he immediately migrates to the large cities. From the standpoint of healthful living, practically everyone will admit and be able to point out the error in the American system.

Here in the San Fernando Valley we have the unique combination of being able to give people the advantages of a rural environment within a large city.

That this growth which was predicted so many years is now taking place is revealed by the fact that 942 building permits were issued in the San Fernando Valley during the month of January, 1939, exclusive of Burbank and San Fernando, which are integral parts of the Valley.

The Colorado River Aqueduct is bringing in water sufficient to meet the needs of ten million people. Without this water the possibility of continued growth such as we have experienced during the past thirty years would inevitably be stifled and killed. ~~With this water~~ the Pacific era is at hand. Like the onrush of the water now on its way to Southern California from Parker Lake on the Colorado River, a flood of growth and development is pouring through the passes into the San Fernando Valley.

Here in the San Fernando Valley our feet are firmly planted on the Good Earth which always has been and always will be a source of the fundamental element of life - food.

Above and around and among us are The Stars - that lead the world to our doors - and lead us ever on to a higher range of vision!

The magi have caught the vision. The Stars lead on. Let us follow wisely.

The recent National Election for the office of President of the United States has clarified as never before the fundamentals on which the American form of Constitutional Democracy is predicated.

While the issues have been clarified, the question of whether this form of government can withstand the advance of totalitarianism, (from within and without), remains in doubt. This is a subject of grave concern to millions of thinking Americans.

With most of the world at war; with social and economic chaos spreading like a plague; with nation after nation falling victim to military dictatorship and ruthless regimentation, these millions are asking, "What can we do NOW to maintain and perpetuate democracy in America?"

The preservation of democracy depends upon an enlightened and conscientious electorate. Our great system of free education has insured the enlightenment of all citizens who will avail themselves of it. Unfortunately, however, in the enjoyment of our great material prosperity we have lost that sense of moral and spiritual values which dominated the lives of those who planted the seeds of democracy on these shores. So our electorate is not always as conscientious as it is enlightened. Therefore, we see millions voting for what they consider their own personal interest and profit, regardless of consequences to the stability and soundness of the nation.

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forceful enunciation of Democratic principles by Mr. Willkie in the recent campaign. This proves that we CAN SAVE OUR SYSTEM OF GOVERNMENT - provided the CRUSADE he so ably sponsored is energetically and dynamically carried forward. While the memory of the issues of the 1940 campaign is fresh, and while the enthusiasm remains, we MUST inaugurate a great, non-partisan program for the preservation of those human values and spiritual ideals which have made this the greatest FREE nation on earth.

Since organization is essential for the promotion of any program, no time should be lost in uniting the millions of American citizens who have so recently expressed their willingness to put aside party prejudice and personal gain for the sake of preserving the AMERICAN WAY of LIFE.

The following suggestions are offered for the forming of such an organization IMMEDIATELY.

1. NAME. Since the Constitution is our charter of democracy and since attacks upon it have threatened the fundamentals of our liberty, we believe that the interest and cooperation of all loyal Americans could be enlisted in a national, voluntary, non-profit organization known as "The Constitutional League of America."

2. PURPOSES. (a) Dedication of the membership to the principles and traditions of the American Way of Life and the ideal of individual freedom under a government of LAWS, as provided by our Constitution.

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(c) To study pending legislation in the light of these essentials and to make a united protest against measures which threaten our constitutional guarantees.

(d) To rekindle that sense of civic responsibility upon which democratic government depends.

(e) To re-awaken the spiritual forces from which spring the moral and ethical codes upon which CIVILIZATION itself was builded.

3. MEMBERSHIP. Any American citizen who is a registered voter is eligible for membership. As a nucleus, enroll all those who have manifested their interest in the above purposes by participating in the various volunteer organizations supporting Mr. Willkie's candidacy.

By remaining STRICTLY non-partisan, enlist citizens of every race, color, creed and political party who believe in the AMERICAN WAY.

Call upon religious leaders of every faith - Jew, Catholic and Protestant to enlist their followers in a CRUSADE for spiritual revival, reminding them that the conflict between totalitarianism and Democracy is a fight of paganism against ALL RELIGION.

Call upon educators to help preserve free education - free speech and free press - and arouse them to the menace of radical propaganda so cleverly contrived for our youth.

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Units should also be organized in churches, colleges and in industrial institutions.

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(Or should there be only voluntary contributions?)

The ZERO HOUR has arrived. Democracy is on trial HERE. It is a challenge we must accept NOW. WENDELL WILLKIE's Campaign aroused America. Let us carry on the CRUSADE he started by the organization of that great minority into an effective group to lead us back to Constitutional Government.

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Talk to be delivered by W. P. Whitsett before the
California League of Municipalities at San Diego,
September 16, 1940

Seventeen years ago this fall, a small party of engineers set out across the deserts east of Los Angeles in search of a route over which an aqueduct could be built from the Colorado River to the coastal plain of Southern California. Facing these pioneers was a task whose magnitude - whose difficulties - and whose uncertainties would have cowed any but the strongest of men.

Facing these men was the problem of tapping the untamed and unpredictable Colorado River. Facing them was the problem of building the world's greatest domestic water supply system across hundreds of miles of absolutely barren mountains and deserts - the largest part of which had never been mapped or explored. Facing them was the problem of lifting great quantities of water higher than such quantities had ever before been lifted. Facing them was the problem of financing such a project - at a time when there was no such thing as government aid - and when two hundred million dollars was considered by the average citizen with the same awesome, but unbelieving reverence, with which he thought of the distance between the earth and the sun.

In all truth, the problem presented such staggering possibilities that there was only one driving force that could conquer it. That driving force was the basic law of Nature - conquer or be conquered. Those pioneers had the choice of either conquering the desert or of having the desert conquer them and their fellow men on the coastal plain. The battle lines were clear cut and there was no place for compromise.

You who live in Southern California know, of course, what that battle is. Ours is a desert empire - a semi-arid land of golden sunshine - and rich fertile soil - and little water. Nature has geen generous with the sun and the soil, but as a price for her generosity she demands that Man shall provide water - or suffer the consequences of Drought.

In Southern California, for nearly a century, the problem of supplying this water was relatively simple because for hundreds of years Nature had been storing a part of her meagre annual rainfall in vast alluvium and gravel beds which underlie the area. For many decades this stored water was under pressure and many sections had artesian wells. In 1900 the artesian wells began to stop flowing - but even then it was only necessary to dig a well a few feet deep to strike the accumulated water in the underground reservoirs.

Following the turn of the century, however, the problem of water supply in Southern California's coastal basin ceased to be the simple problem of digging a well a few feet and striking water. The population of this area began to grow by leaps and bounds. And, naturally, the faster the population grew the greater became its demands for water. It became apparent that the local underground supplies could not forever meet the needs, and in 1906 the then small city of Los Angeles set out to secure additional water from the High Sierras 250 miles north of the city.

By 1914 Los Angeles had completed the Los Angeles Aqueduct. That was a truly great accomplishment, but it met the needs of only one city of the coastal plain and even that city began rapidly to

outgrow that additional supply. By 1920 it was alarmingly apparent that local underground water supplies in the south coastal basin were being dangerously depleted, and that additional supplies of water would have to be imported if the area was to maintain and continue its economic growth.

Careful engineering studies in the early 1920's revealed that the South Coastal Basin had an overdraft of 200 million gallons of water daily. In other words, the population of this area twenty years ago was taking from the ground and using200 million gallons of water more each day than Nature could replace.

Engineering studies also revealed that the only supplemental supply of water that had not already been fully appropriated was the Colorado River - 300 miles away on the other side of the State of California.

In 1923 the City of Los Angeles once again set out to import additional water - sending its engineers across the deserts to the Colorado. Later - twelve other nearby cities - each faced with the same problem of dangerously depleted local water supplies - joined with Los Angeles to fight their common battle with a common effort.

To make this combined effort they formed a new type of governmental unit - The Metropolitan Water District of Southern California - a governmental sub-division of the State of California. This Water District, organized under an act passed by the State Legislature in 1927, has for its purpose the financing, building, and operating of a water supply system from the Colorado River to each of the thirteen cities which comprise the Metropolitan Water District.

The cities which comprise The Metropolitan Water District of Southern California are Anaheim - Beverly Hills - Burbank - Compton - Fullerton - Glendale - Long Beach - Los Angeles - Pasadena - San Marino - Santa Ana - Santa Monica - and Torrance.

Today these thirteen cities, with their combined assessed valuation of nearly two billion dollars, contain 75 per cent of the wealth of the entire coastal plain. Today these thirteen cities have a combined population of more than two million people and have reported a population growth of more than 21 per cent during the last ten years.

The governing board of the Metropolitan Water District, of which I have the honor to be Chairman, is composed of representatives from each of the cities in the District. These representatives are all business and professional men who are well known both in their local communities and throughout Southern California. They give generously of their time and talents, without compensation, in a sincere effort to make sure that the citizens of the Water District are receiving the full measure of value for their investment.

Directly under the Board of Directors is the Chief Administrative offier of the District, the General Manager and Chief Engineer. The man who so capably fills this office is a world renowned engineer - Mr. Frank E. Weymouth. Under Mr. Weymouth's direction the construction of the Colorado River Aqueduct has been handled with the highest possible degree of speed, efficiency, and economy.

Time does not permit a chronological history of the

construction of the aqueduct nor a detailed description of its many features. I imagine that many of you are familiar with the project in general, and I merely want to remind you of some of the more important highlights.

In September, 1931, by a majority of 5 to 1, the citizens of the Metropolitan Water District voted a $220,000,000 bond issue to finance the construction of the Colorado River Aqueduct.

In December, 1932, actual construction work was started on the big job. Stretching clear across the State of California the Metropolitan Aqueduct has an initial length of 392 miles and will have an ultimate capacity of one billion gallons of water per day.

Today, the big job is rapidly nearing completion. Just a few days ago the Board of Directors awarded the last of the principal construction contracts, and present estimates indicate that the system will be placed in operation in the early part of 1941.

At the present time approximately 1200 men are employed on construction work which totals nine and a half million dollars in value and which will complete the initial development of the Colorado River Aqueduct system. With the work thus in its last lap, we of the District are happy to report that the work is being completed at a cost of approximately twenty million dollars less than the original estimates.

All work now under construction is on the aqueduct's distribution system, the main line of the aqueduct having been completed in the fall of 1939. One of the principal features now under construction on the distribution system is the modern water softening and filtration plant. This plant will handle all

Colorado River water used for domestic and industrial purposes in the cities of the Metropolitan Water District, and will provide soft and filtered water of a quality superior to the average water now being used anywhere in Southern California.

Now that our construction job is nearing completion, we of the Metropolitan Water District have deep satisfaction in the knowledge of a good job well done. We know that we predicted wisely twenty years ago when we set out to provide ourselves with additional water from the Colorado. We have seen our thirteen cities grow from a population of 737,000 people in 1920 to 2,025,000 people in 1940. We know that this population trend, along with its attendant economic growth, will continue in the decades to come because we have provided for ourselves the thing that is the very foundation of life in this Western Empire.

The thirteen Southern California cities which pioneered the gigantic job of building the Colorado River Aqueduct - the thirteen cities who had the vision and the courage to assume the financial burden of this great undertaking - these cities now have secured for themselves an abundant, dependable and controlled supply of good water. They have insured for the present and the future the values of their homes and industrial establishments.

There are many other population centers in Southern California in dire need of an unfailing and dependable water supply. Recently the Board of Directors of the District received and considered applications for annexation to the District from the Laguna Beach area. It is to be hoped that a practicable and equitable way may be found to permit Laguna Beach and adjacent

territory to join the District and thus secure a water supply that will support its existing development and enable it to grow and prosper.

Here in the southernmost end of California, in the San Diego region, we find an area with climatic conditions quite similar to the remainder of Southern California. Here water is just as important - and sometimes just as scarce - as it is in any other portion of the state.

For many years, our host city - San Diego - by careful local water conservation and development, has been able to maintain itself by the economic use of local water supplies.

Today, however, in common with a number of other Pacific Coast cities, San Diego is rapidly becoming an active industrial center - and - as a result is experiencing a population growth far in excess of that which is normal in other parts of the nation. In my earnest opinion, San Diego is today - and will in the future - face the same problems of securing an adequate water supply as have faced the cities of the present Metropolitan Water District. I sincerely hope that San Diego will not be deluded into an effort to meet this very vital problem by placing undue reliance upon the continued development of her local water supplies. Rainfall records of the past 100 years warn us sharply that one or two wet years will not carry us over the many dry years sure to come.

The Metropolitan Water District has tackled and accomplished the big job of building a waterway that will carry a new flood of water from the Colorado River to cities on the Pacific Coast line. Our District has experienced the construction hazards

Providing a water supply well in advance of population increase is as essential in the development of a Southern California city as adequate defense forces are in safe-guarding our nation. Drought - the age-old enemy of semi-arid regions is ever threatening us.

By united effort, thirteen cities of the coastal plain have fortified themselves against this enemy and insured their future growth.

Membership in the Metropolitan Water District is open to other communities until the capacity of the Aqueduct is allocated.

Those who have the vision to avail themselves of this opportunity will provide security for themselves and for generations to come.

and heavy costs of driving tunnels through the mountains that stand between our cities and the distant Colorado River. The great waterway that now stands completed ought to be utilized in the future in a manner that will best and most economically serve the interests of the entire developed area of Southern California.

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RAG CONTENT

The Metropolitan Water District of Southern California is opposed to the ratification of the present draft of the proposed Mexican - Colorado River Water Treaty. The whole State of California is opposing it, unanimously and on a genuinely non-partisan basis, as is also the State of Nevada. In the entire Colorado River Basin, including large portions of seven States of the Southwest, at least 80 per cent of the actual water users have, through their responsible ditch companies or water district officials, expressed strong objections to this treaty. The rest of the water users are also adversely affected by it and would certainly register opposition to it if they were so organized as to be able to make themselves heard. Many national organizations have for their own varied reasons considered it necessary to protest and work against this particular treaty. The long list includes the American Bar Association; the American Federation of Labor and other important union labor groups; numerous Veteran's welfare organizations; the National Grange and many State Farm Bureaus, Etc.

Objections to the treaty are very numerous and cover a wide range, but the most important specific changes in the treaty desired and recommended by the Metropolitan Water District and other California users of Colorado River water are:

1. Severance of the treaty, so that treaties fitting the diverse conditions on the Rio Grande, the Colorado and the Tijuana Rivers can be separately drafted and negotiated.

2. A proportionate or sliding-scale allotment of Colorado River water to Mexico, on the basis of a percentage of the outflow from Boulder or Davis Dam, as was agreed on unanimously by representatives of all the 7 Basin States in June 1942 at El Paso, Texas. This would correct the treaty's guarantee of a

first priority in perpetuity to Mexico, which is so threatening to long-established American water rights on such a variable, undependable river as the Colorado in the desert Southwest.

3. Removal from the jurisdiction of the treaty's newly created Commission and American Section, of administrative powers over the rivers involved, leaving such matters to regular departments of government, subject to Congressional control, and with local treaty functions left to local, authorized public agencies, State or Federal.

4. Recognition of the sanctity of the obligation of the compact between California and the United States and the several States interested in the waters of the Colorado River, with preservation of the integrity of water contracts between the United States and Colorado River water users.

THE MEXICAN-COLORADO RIVER WATER TREATY

The States of the Northwest are vitally concerned in defeating its ratification and thus aiding California protect its essential water rights, because California constitutes such an important and growing market for Northwestern raw materials, the products of farms, mines, forests and fisheries. Also, the present treaty has been represented, by U. S. State Department spokesmen, as a model for all future boundary treaties, so it is a threat to present treaty methods along the Canadian boundary. The treaty is an obvious attempt at Nationalization or Federalization, by a subterfuge, of the entire Colorado River basin and therefore threatens to become a precedent for similar encroachments on State Water Rights throughout the West, but particularly in the Northwest, in the Columbia-Missouri River Basins.

By C. C. Elder 3-13-45

BEFORE THE FOREIGN RELATIONS COMMITTEE, THE UNITED STATES SENATE HEARING ON PROPOSED TREATY WITH MEXICO AFFECTING THE WATERS OF THE BOUNDARY STREAMS

By E.F. Scattergood
2-7-45

My name is E.F. Scattergood. Graduate of Rutgers University, 1893; member of the faculty of Rutgers University; Fellow in Electrical Engineering at Cornell 1898-99, receiving an advance degree in engineering; Head of electricity and experimental engineering at Georgia School of Technology to 1901; Special Engineer for the Huntington Light and Power and railway interests in Los Angeles, and later Consulting Engineer in Los Angeles to 1909; Executive Head as Chief Electrical Engineer and General Manager of the Los Angeles Municipal Electric System to 1940; since that date Advisory Engineer, Department of Water and Power of Los Angeles and member of the Colorado River Board of California, an official body having jurisdiction over Colorado River matters for the State; recognized by Rutgers University through the bestowal of honorary degree of Doctor of Science and later by the University of California of the degree of Doctor of Laws, given citations, Advanced Research in Science and Engineering, the creation of hydro-electric plants, transmission and distribution for community purposes, and as a community builder.

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We may better understand the problems of the Colorado River system by visualizing the flows and uses of its waters prior to Boulder Canyon storage and then compare uses and the availability of the waters for beneficial use with the Boulder Canyon project as

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There was being put to beneficial use in the Upper Basin something like 2,500,000 acre feet per year; in the Lower Basin within the United States something like 3,150,000 acre feet per year under conditions generally prevailing from 1920 until 1935, when the Boulder storage became available. Also usually something like under 600,000 acre feet per annum in Mexico, with a maximum year approximating 750,000 acre feet.

California's Contribution to the Available Waters of the Colorado:

The Senator from east of the Rockies elicited from the Boundary Commissioner the statement that California contributes no water to the Colorado River system. It might be pointed out that eastern Colorado, from which the Senator comes, likewise contributes no water to that river.

California's contribution in water may be insignificant but its contributions in other respects have been important. California gave full support to the Director of the Bureau of Reclamation, Arthur P. Davis, in initiating the Boulder Canyon Project, that there might be protection from the devastating floods coming down from the North and the conservation of waters usable and permissible of use within the Lower Basin, in the United States, - otherwise going to waste.

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Act and the Adjustment Act, firm contracts were entered into for water and electric power by public and private agencies in California, underwriting the Boulder Canyon Project including the power plant, thus guaranteeing payments to the federal government within fifty years equivalent to its total investment in the Project, with interest on such total investment at the cost of money to the United States, to-wit: 2½ percent, plus amounts for replacement sufficient to maintain the project and plant in good operating conditions and an additional amount of $30,000,000 on behalf of the States of Arizona and Nevada, in which states the project is located. The total investment of the federal government equals approximately $135,000,000. while the total guaranteed payments over the fifty years will equal $310,000,000, at the end of which period the federal government will own the plant in first-class operating condition. (Note) The actual basis of payments, with respect to interest, is 3 percent on $120,000,000 which will represent $2,000,000 of profit to the government over the interest cost to the government on the total of $145,000,000, in addition to owning the great project, in 1987.

Reference is hereby made to the Boulder Canyon Project Adjustment Act, amendatory to the original Act, and the contracts in conformity therewith between the City of Los Angeles-Southern California Edison Company and the Secretary of the Interior, for the operation of the Boulder plant; contracts for electrical energy between the same and the Secretary of the Interior, - similar as to rates and payments to the energy contracts with the other Power Contractors, including the Metropolitan Water District and the Municipalities of Pasadena, Glendale and Burbank, - are herewith submitted for record.

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Based on the latest estimates of the Bureau of Reclamation covering longtime average flows in excess of assumed beneficial consumptive use equal to 7,500,000 acre feet per annum in the Upper Basin under Compact provisions, the Boulder Project would conserve and make available for economically feasible consumptive use in the Lower Basin, in fact is now making available, roughly, 5,500,000 acre feet per annum in excess of previous uses from the main stream of the Colorado in the United States and Mexico from its unregulated waters. That is, the total water available from the main stream of the Lower Basin would be two and one-half times the amount usable from it unregulated, or an increase of 150% and an increase in the usable waters of the total river system, exclusive of the Gila, of approximately 50%.

The Compact and the Project Act:

Also, California's contribution through the Boulder Canyon Project made possible the Compact, which reserves to the Upper Basin States the right of use at any time in the future, at their convenience, the amount of 7,500,000 acre feet per annum, if not in part given to Mexico.

Furthermore, the Boulder Canyon Project made possible the proviso obligating the Upper Basin to let down not less than 75,000,000 acre feet each consecutive ten-year period in lieu of a rigid requirement of 7,500,000 acre feet each year. Without the Boulder project the latter proviso would have been necessary, as otherwise there would have been no security for users from the main stream in the Lower Basin.

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velopment all the surplus waters of the Basin will be conserved at Boulder available for use exclusively within the United States under the Boulder Canyon Project Act; and, it appears, that with the Davis Project established the waters passing the boundary meantime can be so controlled as to protect against permanent beneficial use by Mexico, - assuming that there is any legal necessity for such protection, and assuming, further, that the federal departments do not continue to order ~~waste~~ water let down in furtherance of increased beneficial uses on the part of Mexico.

It appears, further, that unless the provisions of the Boulder Canyon Project Act are to be disregarded, on which Contractors who are paying for the project have depended, - and those contracts for water uses breached, then the grant of excess firm water to Mexico under the proposed Treaty, should it be ratified, cannot come from the surplus waters conserved in the Boulder Project, but must come from waters other than any of those so conserved.

Power Contractors vs. Treaty Provisions:

The provisions of the proposed Treaty, if ratified, would seriously injure, financially, and through reduction in available electrical energy the Power Contractors, who have entered into firm contracts guaranteeing to pay for the Boulder Canyon Project with

the expectancy that the provisions of the Project Act would be adhered to by the United States.

The delivery of 1,500,000 acre feet of guaranteed water yearly to Mexico plus the additional water she would receive, during protracted periods of low yearly runoff from the Colorado River, would result in increasing the draw down in the Boulder reservoir and in like manner decreasing the power head, and hence the amount of electrical energy available from the project.

Under the provisions of the Treaty 42 percent of the active storage capacity to be provided by the Davis Project for seasonal regulation in conformity with the requirements of irrigators in the United States and Mexico, on an average year, would be required to regulate for Mexico and only 58 percent to regulate for irrigation within the United States. Evidently 42 percent of the cost of the project, other than the power plant, should be charged to Mexico and not to the Power Contractors in our country. Reports placed before the Congress by the Interior Department on which appropriations for the Davis Project were based contemplate that the total cost of the project shall be paid for by power. It is clear that the total amount of electrical energy that may be generated at the Davis Project would be substantially reduced on account of the added burden of regulating for Mexico and that the inherent worth per kilowatt hour of the energy that would be produced would be substantially lessened.

The authority that would be granted by the Treaty to the Boundary Commissioner to develop power with funds necessarily appropriated by the Congress, but without any regulatory control by the

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Congress as to where the power would be sold, or the establishment of rates or what would be done with the revenues with no provision for the repayment of the investment, would place in jeopardy the interests of legitimate electric power utilities in the United States, whether publicly or privately owned.

Section 19 of the Treaty leaves it wide open for the Commission, with the approval of their respective State DDpartments, to enter into any kind of an agreement governing the disposition of the electric power which includes, of course, the receiving of revenues for the electric power so disposed of. The agreement could easily provide that the Commission could use the revenues to pay operating expenses and to construct new works not authorized by Congress, and neither Congress nor the S enate would have any control over the revenues from this immense power system.

The Power Contractors joined with the representatives of the Seven States at El Paso in June, 1942, in agfeeing to an allocation to Mexico of water based on previous use from an unregulated river, despite the fact that a large portion of such water necessarily would come from water conserved within the United States. This was agreed to with the expectancy that the property rights of the Imperial Valley District would be considered and respected, including their power rights, but we must necessarily protest against this Treaty which wouldmimpair the rights of Power Contractors and utilities and result in great damage to them.

Texas and Great Mexico Land Holdings:

California and the great majority of water users in the Colorado River Basin have not interfered in any manner with the years of investigation on the part of the Boundary Commissioner of conditions in the Lower Rio Grande, nor in any manner interfered with the

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Serious Curtailment With Local and National Injury:

The analyses of our engineers of long experience with water in the West indicate that the return flow of the future will be as much as indicated specifically by Mr. Elder. This is corroborated by expressions of many water users in Central Arizona, where there is destined to be great areas of land forever unwatered, making it inevitable that repeated recovery through pumping in Arizona will result. Also as testified by Mr. Elder, it is inevitable that more than 1,500,000 acre feet per year would result to Mexico, or in round figures, something like 1,000,000 acre feet in excess of an allotment based on previous use which the water users of all the states, through representatives at El Paso, in 1942, have indicated

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willingness to supply.

Using the metropolitan area of Los Angeles, as indicated on the map in colors, by way of illustration, respecting urban areas and agricultural lands in the Colorado River Basin, the illustration is carefully considered and will give a reasonably correct indication of the effect of giving Mexico, directly or indirectly through provisions of a Treaty that are not at all fully worked out, 1,000,000 acre feet of firm water in excess of previous use wherever such curtailment of our limited water in the Basin may fall.

The total area shown approximates 3900 square miles, partly mountainous, of which 3000 square miles are habitable, and of that 700 square miles suitable for intensive farming, citrus fruits and vegetables. In 1940 the gross production in this area in agriculture, oil, and industrial development, amounted to $3,400,000,000. It is much greater now, of course, but may be expected to equal that figure following the war by a reasonably short period.

The taxes paid to the federal government in 1940, somewhat less than in 1939, approximated $70,000,000 for Southern California, including Santa Barbara and South. Of this there must have been more than four-fifths from the Los Angeles metropolitan area described. Figures are not now available here, but there have been showings before Committees of the Congress as to the tremendous amounts of materials and goods purchased from all over the United States and shipped to the Los Angeles area; and that, despite the large and growing production in that area, these purchases continue to grow commensurate with the growth of activities in the area. Having in mind conditions of the future when the Pacific Southwest begins to reach its ultimate possible development, limited strictly

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ay water, conditions will be such that the 1,000,000 acre feet of firm water, except temporary in part under some extreme condition which has not occurred during the last 47 years of water record, would sustain a population equal to the population of the Los Angeles metropolitan area as of 1940, to-wit: somewhat in excess of 3,000,000 people, and provide water for from 200,000 to 300,000 acres of land, according to their location. That same water would result in an amount of gross production equal to the total gross production herein stated in the area for the year 1940.

The federal taxes and benefits to other parts of the United States from sales to the Pacific Southwest, all resulting from the retention and use within the United States of such excess of waters proposed to be granted to Mexico, would in one year compensate for what it might cost to create for Mexico in any one of several locations where her own waters and lands are available a great irrigation system which would result in direct general benefits to Mexico and its people.

The Boulder water and power contractors are conforming strictly to their agreements under the Boulder Canyon Project Act and Adjustment Act and our prayer is, on behalf of the water users of the Colorado River Basin and such contractors that the United States shall live up to its commitments through the Project Act, as amended and all agreements made under the provisions of the same.

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WHY CALIFORNIA IS OPPOSED TO

RATIFICATION OF PENDING MEXICAN WATER TREATY

Statement by W. P. Whitsett
Member, Colorado River Commission of California
Chairman, The Metropolitan Water District of Southern California

1. Regardless of the normal variations of the water available in the river, the treaty "guarantees" to Mexico 1,500,000 acre feet of Colorado River water annually. This is twice the amount that Mexico ever did use prior to regulation of the river by Boulder Dam and twice the amount that could be put to use without such regulation.

2. The Boulder Canyon Project Act and the Statutory Compact between the United States and the State of California, made in 1929, wherein California agreed to limit her use of Colorado River water, specifically provide that water stored by the Boulder Project shall be used "exclusively in the United States." California has proceeded on the theory that the United States will keep its compact commitments to California.

3. The treaty gives to Mexico a priority to the waters of the Colorado River and a dominant right which will override all water rights in the United States and to which, in the event of shortage, communities in the United States must yield. All of the water so guaranteed to Mexico originates in the United States. None of it originates in Mexico.

4. The proposed treaty eventually will make it impossible for the United States, during periods of low flow, to fulfill long standing contracts to deliver water for irrigation and domestic purposes to states and communities within the United States. Investments aggregating five hundred million dollars have been made and vast works constructed in California in reliance upon such outstanding contracts.

5. The proposed treaty will subject large areas of land in the United States to a serious and permanent flood menace. This will be brought about by construction of a dam or weir across the Colorado River at a point below the California boundary and above the southerly boundary of Arizona. The treaty authorizes such a dam or weir and, in fact, requires that it be built. The effect will be to raise water in the river above the level of great agricultural areas in the United States and subject those lands to the hazard of devastating floods. At present such a structure is forbidden by treaty and by a court order obtained by Arizona interests.

6. The proposed treaty takes away from United States communities and gives, in perpetuity, to Mexico valuable power resources now available for development on the All-American Canal system situated within the United States. It sets up the machinery and creates the power and authority in the International Boundary

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Commissioner to acquire the property for and construct and operate, in perpetuity, national or international projects for hydroelectric power production, and it excludes Congress from the right of exercising any control over rates, fields of service or use of the funds derived from such power sales.

7. The proposed treaty creates and perpetuates a new type of bureaucratic agency, to be known as the International Boundary and Water Commission, composed of one commissioner from the United States and one from Mexico. This commission is vested, in perpetuity, with extraordinary broad regulatory, judicial and administrative powers on the river, including power to commit the United States to great expenditures for hydroelectric and other works on the river. As set out in the treaty, such powers are not subject to any sort of review or control by the Congress.

8. The proposed treaty sets up the United States Boundary and Water Commissioner as an operating agency, with the right to control and operate the entire Colorado River system and all works thereon, if he deems such control incidental to fulfillment of treaty obligations. This power is to be exercised without regard to established rights of states and communities within the United States and is intended, and does, form the basis of nationalization of all works on the river, regardless of their location with respect to the boundary. The treaty makes the United States Commissioner responsible only to the Department of State. The treaty does not retain in the Congress of the United States the right to review or pass upon the plans for or the expense of projects on the river. Under the terms of the treaty Congress will be bound to appropriate any funds required for the construction of works agreed upon by the United States Commissioner. Failure to make such appropriations will constitute a breach of the treaty.

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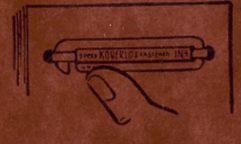
See How E-A-S-Y it is to close!

Insert hole of fastener cover in right prong so that prong is on the inside, and Koverlox lettering is on top. ❶

Press down towards the left. Bend left prong OVER cover to create a slight curve. ❷

Then slip lock under prong to close file fastener. ❸



To unlock, push back the raised edge marked "unlock" with ball of thumb. ❹

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